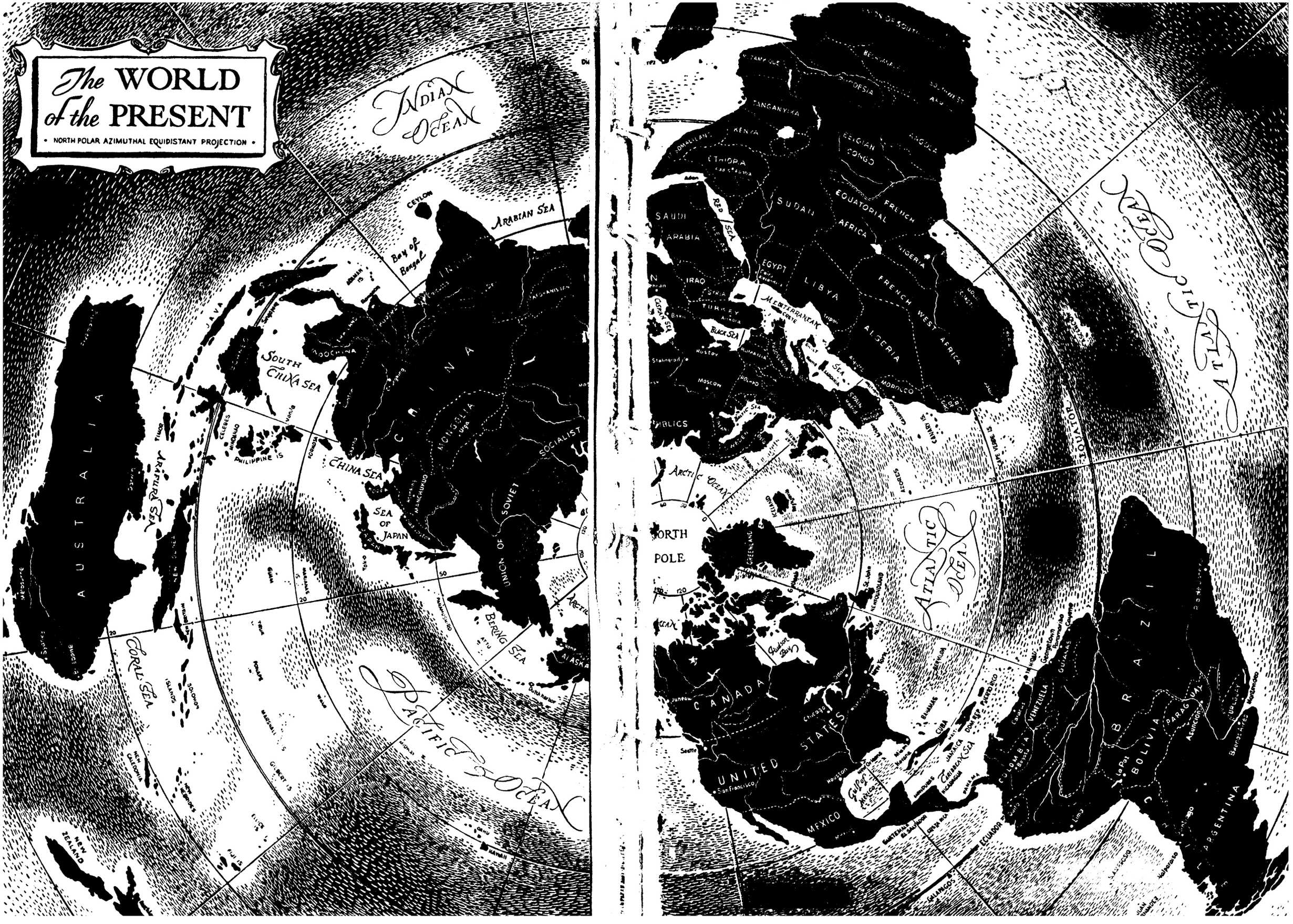
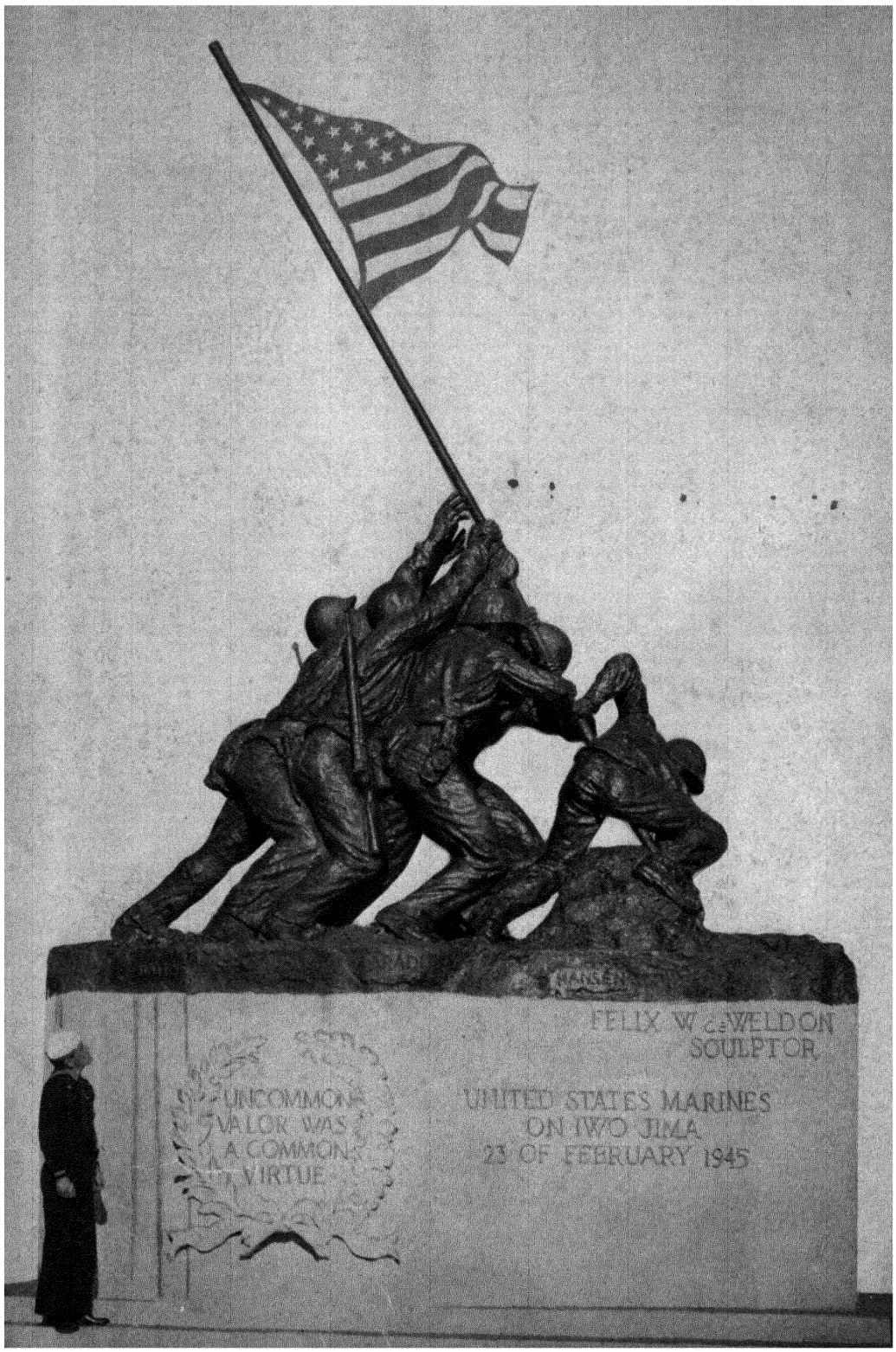
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The WORLD of the PRESENT

• NORTH POLAR AZIMUTHAL EQUIDISTANT PROJECTION •



THE FLAG WAVES OVER IWO JIMA



On February 23, 1945, five U.S. Marines and a U. S. Navy man battled their way to the dominating crest of Mt. Suribachi, and planted Old Glory on the crater's rim. In this picture of Felix W. de Weldon's statue in Washington, D.C., Pharmacist's Mate 2/c John H. Bradley, one of the three survivors, surveys the sculptor's representation of his comrades and himself. The statue was inspired by and modeled after the famous unposed photograph taken on the spot by Joe Rosenthal, Associated Press Photographer.

THE AMERICANA ANNUAL

AN ENCYCLOPEDIA OF THE EVENTS OF 1945

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To *the Men and Women who served in the Armed Forces of the United States during the Second World War, and especially to those who gave their lives for the preservation of American freedom, this volume is respectfully dedicated.*

foreword

FOR THE PAST SIX YEARS the Second World War has been the dominating theme of each issue of THE AMERICANA ANNUAL. In this issue, though the war has ended, much space has again been devoted to the conflict and to its aftermath. The bloodshed stopped when the "cease firing" orders were given only to be followed by turmoil and discord superimposed upon fear and consternation growing out of the greatest scientific achievement of all time—the development of atomic energy. The resulting condition is almost as appalling as the war itself.

In Europe and Asia hunger, cold and pestilence stalk alike the victors and the vanquished; in China civil war plagues the people of that peace-loving country; India seethes with unrest; terrorism reigns throughout Palestine; a revolt is underway in Iran; revolution has broken out in Java where the natives are attempting to overthrow Dutch rule; Greece is having her troubles; France is in the throes of political upheaval; and here, in the United States, strikes and threats of strikes have upset the entire reconversion program.

Also, as a result of the war, a large part of the world is bankrupt—ruined primarily by two mendacious and power-hungry dictators and a group of military oligarchists. One of these dictators has met a violent death at the hands of his own people; the other, the number one war criminal, is believed to have taken his own life rather than face the consequences of his iniquity. At least two of his collaborationists have been executed after trial; several of his satellites have gone the suicide route, while the fate of others is being determined by courts of justice.

Because of the rapidly shifting scene from war to peace to chaos, the presentation of all the pictures in the global kaleidoscope has been a difficult task. Nevertheless, we are confident that for all in search of factual information relating to the events of 1945, the 1946 AMERICANA ANNUAL will prove a thoroughly reliable record.

In this edition many new names have been added to the list of AMERICANA ANNUAL contributors. Among them is that of Maj. Erwin Ch. Lessner, noted military authority and historian, who writes authentically on the War, Germany, Japan, and Hitler.

Another newcomer is Mr. Vladamir D. Kazakévich, widely known lecturer and teacher, who has contributed one of the most informative articles on Soviet Russia yet to appear in print. Still another authority who contributes to THE ANNUAL for the first time is M. Roger Duhamel, lawyer and journalist, who discusses the events taking place in the France of today.

Other new contributors include Mr. David Leong, of the Chinese News Agency, who writes with first-hand knowledge of China and her troubles; Prof. A. N. Christensen, of the University of Minnesota, who gives a graphic picture of strife-torn Argentina; Dr. W. V. Houston, of the California Institute of Technology, who tells all that the government will permit to be told about the development of the Atomic Bomb; and Mr. Witt Bowden, who describes Labor Conditions in the United States. This by no means completes the list of new contributors; space limitations preclude naming the complete roster.

Indicative of the scope of THE ANNUAL attention should be called to the following outstanding articles: Aeronautics, Agricultural Research, Amphibious Warfare, Chemistry, Education, Electronics, Food Research, Medicine, Naval Progress, Painting and Sculpture, Radio (including Radar), Sociology, Surgery, Television, Tropical Diseases, War Policy of the United States, World Politics, X-Ray, and the separate articles on the various countries of the world. THE ANNUAL also contains an unusual number of biographies of prominent persons.

To the contributors, new and old; to the hundreds of United States, foreign, state and local officials who so cheerfully supplied an enormous amount of the information contained in this volume; and to every member of the editorial staff, the editor acknowledges his indebtedness and his appreciation of their support and loyalty.



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THE AMERICANA ANNUAL

A

ABDULLAH, Achmed (full name **Achmed Abdullah Nadir Khan el-Durani el-Iddrissyeh**), Russian Afghan short story writer, novelist, and playwright: b. Kabul, Afghanistan? May 12, 1881; d. New York City, May 12, 1945. Truth and fiction mingled equally in most of the activities of this writer of dashing tales of romance, intrigue and adventure. He kept his real name a secret, and it was claimed that he was the son of Grand Duke Nicholas Romanov and Princess Nourmahal Durani. In his autobiography, *The Cat Had Nine Lives* (1933), Abdullah stated that he was educated at Eton, Oxford, and the University of Paris; and spent long years in the British Army, serving in the Far East, the Near East, Africa, and France. He went to the United States in 1924. He wrote for English, American, and French magazines; published some 27 books; and was the author of a number of plays, including *Toto* and *The Grand Duke*, and motion pictures, the best known being *The Thief of Bagdad* and *The Lives of a Bengal Lancer*. His principal books were *The Red Stain* (1917); *The Blue-Eyed Manchu* (1917); *The Trail of the Beast* (1919); *Alien Souls* (1921); *Steel and Jade* (1927); *The Romantic Young Man* (1932); *Deliver Us From Evil* (1939); and with Fulton Oursler, *The Shadow of the Master* (1940).

ABEMAMA ISLAND. See WESTERN PACIFIC ISLANDS, BRITISH, Section 2.

ABRASIVES. The output of the abrasives industries in 1944 totaled 1,340,909 short tons valued at $34,403,056, and was only slightly under the 1,365,632 tons valued at $35,829,658 of 1943, according to the United States Bureau of Mines. Ground sand and sandstone, and metallic abrasives rose to new highs. The average annual sales of diatomite for the three-year period 1942–44 were substantially higher than for similar periods in the past. Market production of emery, pumice and pumicite, and tripoli were larger than in 1943. Domestic production of most of the other natural abrasive products was somewhat less in 1944 than in 1943.

The value of natural abrasives produced in the United States in 1944 amounted to $9,575,038. The value of artificial abrasives produced in 1944 was $24,828,018, including material produced in Canada. These figures compare with $9,631,657 and $26,198,001 respectively in 1943.

ABYSSINIA. See ETHIOPIA.

ACADEMY OF ARTS AND LETTERS, American. See AMERICAN ACADEMY OF ARTS AND LETTERS.

ACADEMY OF ARTS AND SCIENCES, American. See AMERICAN ACADEMY OF ARTS AND SCIENCES.

ACADEMY OF DESIGN, National. See NATIONAL ACADEMY OF DESIGN.

ACADEMY OF POLITICAL AND SOCIAL SCIENCE, American. See AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE.

ACADEMY OF POLITICAL SCIENCE. An international learned society for advancing the political sciences and their application to political, economic and social problems, founded in 1880 in New York City and incorporated in 1910. Its membership on Aug. 31, 1945, numbered approximately 9,281, of whom eight were honorary members, 328 life members, and approximately 7,753 individual members and 1,200 subscribing members, chiefly libraries and organizations. At the semiannual meeting on April 4 and 5, 1945, in New York City, "World Organization—Economic, Political and Social"—was discussed. At the 65th annual meeting held on November 8 at the Hotel Astor, in New York City, the topic discussed was "European Recovery." The following officers were elected for 1945: Lewis W. Douglas, president; Thomas J. Watson and Leo Wolman, vice presidents; Noel T. Dowling, secretary; John A. Krout, editor of publications; Sam A. Lewisohn, treasurer; and Miss Ethel Warner, director and assistant treasurer. Headquarters: Fayerweather Hall, Columbia University, New York City.

CAROLINE D. MONNOT,
Assistant to the Director, Academy of Political Science.

ACADEMY OF SCIENCES, National. See NATIONAL ACADEMY OF SCIENCES.

ACCIDENTS AND ACCIDENT PREVENTION. Accidental deaths during the first six months of 1945 totaled 44,000—5 per cent less than the 1944 comparable total of 46,100. Motor vehicle deaths decreased 1 per cent; occupational deaths dropped 7 per cent. Public nonmotor vehicle deaths were about the same. All of which seemed to hold at least a faint promise that the 1944 twelve months total of 95,000 accidental deaths might be pared somewhat when the final reckoning for 1945 came up. But, ironically enough, the sweeping victories on the far flung battlefronts—the nation's joy at the tensely awaited word that "it's all over"—seem to signal a bitter defeat on the home front, unless everyone "takes it easy."

As this is written, only motor vehicle figures are available beyond the half-year mark. They are not encouraging. America's gas starved motoring population got a little bonus on June 22—a little loosening of the gas ration. In July, the nation's traffic toll shot up 15 per cent over the same month of 1944. Impending events cast their shadows—the 15 per cent rise in July was heralded by an 11 per cent increase in June.

Safety people the nation over feared a big postwar traffic headache. They have it already—with Nippon's acceptance of the Potsdam declaration still ringing in their ears. A 1 per cent decrease in the traffic toll for the first seven months stands only because of substantial decreases early in the year, before the trend did an

about face. It all adds up to the fact that the wartime record of low traffic death tolls is over—unless the driver and the pedestrian will it differently.

Safety work country-wide during 1945 has topped even the record expansion of the last full war year of 1944. The activities of the National Safety Council and its affiliated state and community organizations continue to grow, along with the accident prevention efforts of industry, schools, and government and private agencies of many kinds.

Wartime meeting and travel restrictions forced a break in the long line of National Safety Congresses—the year's show place of organized safety work nationally. Cancellation of the 34th National Safety Congress and Exposition affected hundreds of sessions that had been planned, dealing with all phases of safety—sessions that annually attract over 10,000 of the people who make the nation's safety programs deliver results.

One of the first things that millions of soldiers will want to do will be to climb behind the wheel of an automobile and go places. They—along with other millions of civilian motorists, who have grown rusty with rationed driving, will be driving not too youthful cars over roads that have had little more than breakdown maintenance. These men will also be returning to peacetime jobs that are new and strange to them, in an industrial development that will produce a host of new problems of health and safety. These things make imperative greatly increased efforts to beat down the postwar toll of accidents. The safety movement has a challenging job ahead.

R. L. Forney,
General Secretary, National Safety Council.

ACOUSTICS. See Physics.

ACT OF CHAPULTEPEC. See Pan American Affairs.

ADEN AND ADEN PROTECTORATE. See Arabia.

ADVENT CHRISTIAN CHURCH. According to the denominational *Manual* for 1945, the present membership is 32,540 (including foreign mission fields), with 466 churches and 411 ordained ministers. The Sunday-school membership (including foreign mission fields) is 22,018. There is also a young people's society known as Loyal Workers; and several Young People's Institutes are conducted at summer campmeetings. The largest campmeeting, which is at Alton Bay, N.H., lost about 300 cottages and several larger buildings by fire, Aug. 23, 1945. Work in foreign fields is carried on through the American Advent Mission Society and the Woman's Home and Foreign Mission Society. Aurora College, at Aurora, Ill., is a fully accredited college and grants degrees in arts, science, theology, and music; president, Dr. T. P. Stephens. The New England School of Theology, of Brookline, Mass., trains pastors and missionaries; president, Dr. Guy Linwood Vannah. A home for aged ministers and their wives is maintained at South Vernon, Vt., and a home and orphanage at Dowling Park, Fla. The oldest denominational paper, *The World's Crisis*, has been published since 1854; present editor, J. A. Nichols, Jr. A series of *Blessed Hope Quarterlies* are published for the Sunday school. The present editor, Dr. Linden J. Carter, has served in that capacity for the past 30 years. Among the other denominational periodicals are *Messiah's Advocate*, *Present Truth Monthly*, and *Advent Christian Missions*. Dr. Lee E. Baker, of Oakland, Calif., is president of the General Conference, while Dr. C. H. Hewitt, 165 Calumet Ave., Aurora, Ill., is the general secretary.

Linden J. Carter,
Editor, Blessed Hope Quarterlies.

ADVERTISING. Like practically all phases of business, advertising was affected profoundly during 1945 by the end of the war and the preparation for a peacetime economy. War effort advertising tapered off sharply during the latter part of the year, institutional advertising, too, showed a sharp decline; while the presentation of consumer products and advertisements, designed to develop a reception for products when they might become available, gained in volume. The principal developments of the year may be summarized as follows:

(1) advertising's continued support of the war effort;
(2) advertising's adaption to the reconversion period as manufacturers began to make the transition from war to peacetime production;
(3) increase of product advertising, that is, straight selling copy on both available goods and expected future products;
(4) increasing attention to developments in the postwar economy in relation to the serviceman and his return to civilian life;
(5) economic foreshadowing of the use of new inventions and discoveries for industrial purposes.

While most of the war effort advertising came to a close toward the end of the year, two outstanding campaigns to sell war bonds deserve mention. They were the "7th War Loan Drive" and the "Victory Loan Drive." Advertising's place in the war effort was summarized in a booklet entitled *From War to Peace*, published by the War Advertising Council. According to this booklet, "American business supported more than 100 different home front campaigns" and "estimated space and time contributed, more than one billion dollars." A few highlights of this war effort advertising follows:

War Bonds: "American business (advertisers and media) contributed an estimated 350 million dollars worth of space and time in support of war bond promotion."
Food: "An estimated 100 million dollars worth of advertising contributed by business."
Armed Services: "Business contributed an estimated 80 million dollars worth of space and time for recruiting and morale campaigns."
Manpower: "Space and time contributed by business estimated at 40 million dollars."
Conservation and Salvage: "Estimated business advertising contribution for conservation and salvage messages 65 million dollars in space and time."

Other campaigns promoted were the Cadet Nurse Corps recruitment drive, Red Cross and National War Fund campaigns and civilian services.

Peacetime appeals were much in evidence during the reconversion period in the latter part of the year. Many of them were designed to stimulate people's desires for more and better things, even before consumer goods became generally available. Toward the very end of the year advertising showed signs of returning to normal with an increase in straight consumer goods advertising.

Full peacetime production with full employment is the goal toward which all America is looking in the postwar years, and advertising is being given an important place as one of the basic factors in helping to attain that goal which calls for a much higher standard of living for the great majority of our people. Currently, however, the advertising business is featuring a new type of appeal which may be referred to as "transition advertising" to bridge the gap be-

tween war production and full peacetime production of civilian goods. Transitional advertising is being used to develop desires for products which, although not yet available, are expected to be on the civilian market before long. For example, the Ford Motor Company used transition advertising in a campaign with the theme "There's a Ford in Your Future." Wm. Wrigley, Jr. Co., gum manufacturer, anticipated its product's return to a peacetime buyer's market with an advertising campaign featuring the Wrigley gum wrapper and the slogan "Remember this Wrapper."

The lifting of all bans on automobile production and the end of gasoline rationing was the green light for major automotive manufacturers to begin to promote full-scale advertising campaigns. The automotive industry counts heavily on advertising to acquaint the public with its product and the total advertising expenditure for automotive advertising is expected to reach a record volume in 1946.

The national dimout was lifted on May 8, 1945. After three years of blackouts, brownouts, and dimouts, people were glad to see the streets bright and cheerful looking again. The illumination of outdoor advertising made it possible for that medium to serve again fully at night as well as all day.

Restaurant, amusement, and recreational facilities enjoyed a record year in 1945 and many attendance figure records were broken.

The Traffic Audit Bureau, the authority for outdoor advertising circulation figures, in much the same way as the Audit Bureau of Circulation in the magazine and newspaper field, reported that the effective circulation of outdoor advertising for the fall of 1945 was 23 per cent greater than last prewar audits.

During 1945 many conventions and meetings were held as nationwide telephone conferences—a wartime innovation to help relieve the congested facilities for traveling. With governmental restrictions on meetings lifted in September 1945, it was predicted that 1946 would be the heaviest convention year in American history. Hotels did a tremendous volume of business throughout the country with transient trade, vacationists, and servicemen and their families.

On Oct. 11, 1945, Paul W. Kesten, executive vice president of the Columbia Broadcasting System, speaking of television, announced the transmission of pictures in full color. He said, "Only yesterday, October 10th, I saw these television pictures successfully broadcast across the crowded New York skyline and received many blocks away with superb clarity, demonstrating the actual use of the ultra high frequencies and the modulation of a ten-megacycle video band—two of the things so many were so sure could not be done."

Plans were made for several new magazines to be introduced in the latter part of 1945 and early in 1946. Curtis Publishing Company announced a new monthly magazine, *Holiday*, for March 1946 and also announced plans for other new magazines. Hearst Magazines, Inc., announced a November 1945 publication date for their new magazine *Junior Bazaar*. McGraw-Hill Publishing Company announced the purchase of *Science Illustrated*, and plans for an entirely new type of science publication. Second World War veteran groups announced several new veterans' publications. Two of these are titled *Amvets* and *Veteran's Outlook*.

Retail sales made gains even with merchandise shortages. Expansion was the keynote of the retailer's future. Several large department stores announced plans for branch stores throughout the country.

Food advertising in 1945 emphasized straight selling copy again as food manufacturers recognized the shift from a wartime seller's market to a peacetime buyer's market. Premium offers, prize contests, and special inducement copy—wartime casualties—showed signs of a comeback during the latter part of 1945.

During 1945 reconversion brought changes in distribution and marketing. At a meeting of the American Marketing Association on Oct. 16, 1945, Dr. Vergil D. Reed, associate director of research, J. Walter Thompson Company, predicted that "Supermarkets can be expected to increase in numbers and volume with the return of automobiles and gasoline." He said also that there will be an increasing trend toward drug and cosmetic sales through these outlets.

A number of American companies advertised in foreign countries in 1945 to reach American servicemen overseas and to create a peacetime foreign market for their products. However, the most important objective attained by this foreign advertising was the goodwill and friendship developed between the American serviceman and the advertiser.

Market studies and research were necessarily curtailed in 1945 due to lack of manpower and other wartime changes. However, some studies were made to ascertain the public's reaction to advertising. In a nationwide poll conducted by the Psychological Corporation for Index of Public Opinion, results published in July 1945 showed that of the 2,500 persons interviewed, 39 per cent thought the country would need more advertising after the war than it had before the war, while 36 per cent believed it would need about the same, and 19 per cent thought it would need less.

Indicating a trend toward worldwide interests, plans were made during 1945 for American research methods to be applied to foreign markets. Researcher Elmo Roper announced plans for research in Latin America to ascertain Latin American opinion on United States products and business policies and to extend United States methods of marketing and public opinion research to Latin America. International research plans also were formulated and surveys were begun by George Gallup in many foreign countries. Gallup polls are already operating in seven foreign countries. Purpose of the surveys is to get a broad picture of public opinion in leading countries and to compare attitudes in one country with those of another on common world problems.

In December 1945, a new standard 24-sheet outdoor poster panel was adopted by the Board of Directors of the Outdoor Advertising Association of America, Inc. In the new panel the poster proper is given greater size.

At the third quarter of 1945, advertising volume was running about 2 per cent ahead of the same time in the previous year. It is expected that the year's total percentage gain will be well over the 1944 figure. Of all the major media, outdoor advertising enjoyed the biggest gain in 1945—up 40 per cent—as compared with 1944.

Not much improvement was noted in the paper shortage situation. Reduced government demands will improve the supply in 1946, although the law of supply and demand will pre-

vent the increase from being large for some time.

Scientific discoveries and developments such as radar were explained to the general public through the medium of advertising.

In September 1945 the War Advertising Council announced a comprehensive public service plan under the peacetime name of the Advertising Council. Plans involve the expenditure of at least $30,000,000 a year to help create a public understanding of postwar problems, such as employment, public health, housing, and conservation.

During 1945 advertising's future role was pictured as a key to full employment. After a conference with President Harry S. Truman in September 1945, Elon G. Borton, president of the Advertising Federation of America, said, "the president indicated his agreement with us that marketing, including merchandising, styling, selling and advertising, must function effectively if mass production is to produce full employment and a higher standard of living."

KERWIN H. FULTON,
President, Outdoor Advertising Incorporated.

AEGEAN, ê-jē'ăn, ISLANDS. See DODECANESE ISLANDS.

AERODYNAMICS. See AERONAUTICS.

AERONAUTICS. Aviation continued to record immense technological progress in 1945, developing new and improved types of aircraft, creating novel and important innovations in propulsion, and surpassing all existing nonstop distance and speed records. Termination of the Second World War caused immense dislocations throughout the industry during the year, bringing quantity production of military planes to an abrupt halt, leading to the wholesale discharge of personnel; creating a tremendous surplus of aircraft on the market; and involving the industry in the formidable problems of reconversion and peacetime development. All phases of the industry were affected, including military and naval aircraft, peacetime industry, research facilities in aerodynamics and airplane development, materials, gliders, rotary wing aircraft, engines, accessories, civil and international aviation, and private flying.

Military Aviation.—On Feb. 26, 1945, Gen. Henry H. Arnold, commander of the American Air Forces, warned the country in his annual report that the United States would be the first target in the next war, and that airpower would be the weapon used. He advocated comprehensive aviation research, the maintenance of an air force second to none, a strong aviation industry, strategically located bases, co-operation between army and navy air and surface forces, a strong commercial air transport industry, preparations to administer and to counter troop carrier operations, and an up-to-date training establishment.

In the light of the year's developments, including those cited in General Arnold's report, it became clear that future aerial warfare would have to consider a number of new and revolutionary factors, among them the following:

(1) Aircraft, piloted or pilotless, moving at speeds far beyond the speed of sound—well over 700 miles an hour.

(2) Improvements in aerodynamics, propulsion, and electronic control, enabling unmanned devices to transport means of destruction to targets at distances of many thousands of miles. Pending complete development of guided missiles, vigorous continuation of the development of piloted plane construction seemed mandatory.

(3) The use of small amounts of explosive materials, as in atomic bombs, capable of causing the immediate destruction of many square miles.

(4) Perfection of defense against present-day aircraft by means of electrically controlled, target-seeking missiles.

(5) Penetration of enemy territory protected by such defenses only by aircraft or missiles moving at extreme speed.

(6) Establishment of a communication system between a control center and each individual aircraft.

(7) Location and observation of targets, operation of take-off navigation, and landing of aircraft and communications independent of visibility or weather.

(8) Ability of fully equipped airborne task forces, totally supplied by air, to strike at far distant points.

Operations of the United States air forces could no longer be considered local, or limited to any extent. Bombers larger than the Boeing B-29, one of which established a new nonstop record on Nov. 20, 1945, by flying 8,198 miles from Guam to Washington, D.C., in 35 hours and 5 minutes, can now range the world. Long-range escort fighters, at one time thought impossible, became both practical and essential to bombing operations. Radar, applied television, and other such devices rendered day and night operations practical and essential.

Naval Aviation.—At the beginning of 1945, the navy had 37,000 planes, while 29,000 more were scheduled for delivery during the next 12 months. The Naval Air Forces, with the support of over 100 aircraft carriers, were largely responsible for rolling back the Japanese from island to island in the Pacific, for destruction of the Japanese fleet, and for making possible the establishment of B-29 bases from which the Army Air Forces (AAF) were able to achieve destruction of Japan's industrial power. The navy's Seabees showed miracles of ingenuity and energy in constructing airstrips and airfields in jungle and rocky territory. It was also demonstrated how well the naval air arm could co-operate with surface vessels, particularly aircraft carriers, in creating task forces of unexampled strength and mobility. The navy also proved that carrier-based aircraft could fight land-based aircraft on more than equal terms, though of course a country more highly developed than Japan might not have allowed the establishment of any such equality. Long-range patrol bombers developed by the navy covered the Pacific far and wide; and blimps, operated mainly by navy personnel, showed that these small lighter-than-air craft remained a powerful weapon of offense against submarines.

Reports and statements issued by high ranking officers rightly emphasized the magnificent record made by the Naval Air Forces during the year, but they all seemed to underestimate one great lesson of the war: namely, that the navy, even with the aid of its airplanes, might now have to be relegated to a secondary position as a fighting force. The long-range bomber, the guided missile capable of operating at over 1,000 miles per hour, the unprecedented power of the atomic bomb, seem to have reduced the role of the navy in future wars, or even in national defense, to a purely secondary one: that of providing transportation for forces of occupation; for carrying supplies to distant bases; and for other similarly important but indisputably secondary tasks.

It should be noted that, in addition to developing its formidable fighting effectiveness, the navy encouraged and advanced technical aeronautics on a large scale and with great supervisory skill, particularly in its Bureau of Aeronautics. In developing the turbo jet, and also the rocket, as a missile and as a method of assisting take off, in providing equipment for altitude flight, in developing new and original conceptions in training devices—in all of these developments the Navy Bureau of Aeronautics equalled and in some ways surpassed the achievements of the military arm.

During the war, the navy was loath to reveal radical advances in aircraft and aircraft weapons, but this policy was not followed so rigidly during the latter part of 1945. Perhaps the navy sought to avert decreases in the funds allotted to it for research by revealing the achievements of its own laboratories and those of its contractors. At any rate, before the navy's research appropriation for 1946 was reduced from $148,250,000 to only $61,000,000, a number of weapons were taken off the secret list, many of them having rather queer names.

The Glomb, for example, is a pilotless glider carrying a 4,000-pound bomb. It has the appearance of a light, single-seat, low-wing plane, is towed by a fighter plane, and then released and guided to its target by television.

The Gorgon is a jet-propelled missile, carried by a bomber and guided to its target either by radio or by its own target-seeking mechanism. It carries a 100-pound bomb at 550 miles per hour.

The Gargoyle is a similar device which carries a 1,000-pound bomb at 600 miles per hour and also seeks its target automatically.

Electronic equipment made these and other new air weapons possible. The exact character of the controls was not indicated, of course, but the following remark was revealing: "airborne radars initiate defence and automatic circuitry, which can instantly release airborne counter-missiles."

Aircraft Industry.—The end of the war came sooner than the aircraft industry had anticipated; and accordingly the industry was not prepared to meet three serious problems with which it had to deal: immediate and ruthless termination of contracts; an overhanging surplus of aircraft and engines; and the problem of disposing of plants, financed in many cases with federal funds and, in extent, far greater than could possibly be utilized in postwar times.

War requirements had changed constantly; and, as a result, contracts had had to be terminated even while production requirements had gone up. For several years the primary function of contract settlements was to clear the way for further production. Such settlements were welcomed by contractors who had frequently terminated contracts without insisting on the costs or profits to which they were entitled. The Contract Settlement Act of 1944 became effective July 21, 1944, and the undelivered value of outstanding contracts at the end of the war was estimated at about $50,000,000,000, of which amount a substantial proportion represented aircraft contracts. V-E Day had no great effect on the contracts then in existence, since the collapse of Germany had been fully anticipated, and contracts had been changed to cover requirements of the war against Japan. V-J Day, on the other hand, brought an immediate cancellation of contracts not only with the prime contractors (that is, contractors dealing directly with the services), but also with subcontractors. Many a factory found all of its contracts cancelled overnight, and its entire plant reduced to a standstill. While companies which had come into being because of war conditions were in many cases content to disappear, companies of prewar origin reacted more energetically in a number of ways. For the most part, the latter retained their staffs of engineers. It was generally realized, both by federal agencies and by the aircraft industry, that in view of the increased rate of progress evident in aircraft equipment, production might well be lowered, but that research and development should continue as energetically as ever. Hence the need for engineers.

The question of aircraft surplus became as serious for the industry as the question of contract termination. Aircraft surplus of little value included war-weary combat planes and tactical aircraft which had become obsolescent or otherwise unnecessary. On the other hand, it was realized that transport airplanes, suitably reconverted, might facilitate the expansion of American airlines, while reducing the number of new transports to be built. Trainers and liaison types should be readily salable, but if released unwisely, might retard the construction of more modern light planes. The whole question of surplus disposal was fraught with difficulty, and on the policies adopted by the Aviation Division of the Surplus Property Board hinged much of the immediate future of the aircraft industry.

Aerodynamics.—The arrival of jet engines pushed the speed of aircraft to a figure exceeding 600 miles an hour in 1945, and accordingly forced attention on the problem of the compressible shock which occurs at or near the speed of sound. Together with the shock wave, there may occur separation of the flow from the surface of the wing with loss of lift and increase in drag. At one time it was thought that the compressibility shock would prevent flight ever occurring at speeds exceeding 500 miles an hour or so. However, flight at much higher speeds now became possible because of (1) enormous power developed by the jet engine, even though this increase was achieved at the expense of great fuel consumption; (2) the development of laminar wings specially designed to avoid violent changes in pressure round the airfoil; and (3) the use of very thin wings, either flattish diamond or biconvex in form. Faced with the problems of supersonic flow, airplane constructors found that neither mathematical analysis nor intuitive skill would suffice. Accordingly they called to their aid the high-speed wind tunnels of Langley Field. At a conference held under the auspices of the National Advisory Committee for Aeronautics, an intensive program of six months research was set up, which promised to solve many of the problems in question. Besides the loss of lift and efficiency, another difficulty was noted during the year, a change from ordinary flow to the compressible shock flow in the region of some 400 to 550 miles an hour. Such a change, occurring suddenly and rapidly, introduces a new species of flutter or vibratory effects on the wings which sometimes proves hazardous, particularly in preventing effective control and in hindering the pulling out of a speedy dive. Together with the study of the aerodynamics of compressible flow, researches have been made into the construction of the thin, knife-like wings that are required. Smoothness of contour is absolutely imperative in such

thin wings, and there must be elimination of surface riveting, and also changes in the internal construction of the wing. Several avenues of approach to the problems involved were reported, including construction of a forged, one-piece hollow metal wing; a very thin solid metal airfoil; and a wing in which the metal skin, fitted with internal rivet plates, is wrapped over beam and ribs and secured by internal riveting.

Still on the restricted list, for the most part, was a new branch of aerodynamics developed during the Second World War: a branch which may be termed the science of internal aerodynamics. By internal aerodynamics is meant that branch of aerodynamics which is concerned with the internal ducting of the airplane for the passage of air for cooling oil coolers and supercharger intercoolers, the provision of ducts for the admission of the vast quantities of air needed for jet propulsion, and the internal cooling of the radiators of liquid-cooled engines. Together with the study of such internal flow, there has developed a greater knowledge of the axial flow compressor which is in itself an aerodynamic device. The thrust produced from the jet is a matter partly of aerodynamics and partly of thermodynamics. Thus the Second World War saw a union of aerodynamics and thermodynamics in application to aircraft. It was hoped that free dissemination of the knowledge in this field would not be delayed much longer.

Applied aerodynamics progressed in another direction: that of securing even greater lift capacity at landing. Recent designs, such as those of Douglas Aircraft Corporation, revealed to the public a full span flap. By this is meant a flap which continues almost to the tip of the wing and embraces the aileron area. By means of novel smaller auxiliary surfaces, the lift increase action can thus be extended over the entire span of the wing, while aileron action remains adequate at the slowest flying speeds.

Research Facilities.—Wind tunnels and engine test stands are by no means the only research facilities employed. Lockheed Aircraft Corporation, for example, announced in 1944 an experimental modification of the Lockheed P–38, which had been used secretly since 1943 to test the characteristics of airfoils. The different airfoils to be tested are installed in this plane as envelopes or false wings over a permanent metal structure. The P–38 has also been provided with blowers and suction slots, so that the control of the boundary layer of laminar flow wings can be investigated also.

Ground research facilities were increased during the year by the completion of two large wind tunnels, of similar construction and design: the California Institute of Technology tunnel in Pasadena, and the Curtiss-Wright Corporation's wind tunnel in Buffalo, N.Y., now taken over by Cornell University. While these tunnels added greatly to existing research facilities and enabled aerodynamics studies to be extended at more centers in attacking compressibility and high-speed problems, they did not offer anything greatly novel in conception.

Far more significant was the construction of a new supersonic wind tunnel built by the National Advisory Committee on Aeronautics (NACA) for jet propulsion research. The new NACA wind tunnel, built in Cleveland, is a unique experimental facility for investigating the operating characteristics of turbo-jet, ram-jet, and similar engines expected to propel aircraft and guided missiles at supersonic speeds. In operation, turbo-jets and ram-jets must handle vast amounts of air at such high speeds as to change the character of the flow entirely. Aerodynamic research, accordingly, no longer suffices if the model of the airplane used embodies aerodynamic characteristics only. The new supersonic tunnel is capable of testing complete aircraft propulsion units under conditions simulating altitudes up to 30,000 feet, and pressure conditions up to 50,000 feet. Widely varying humidity and temperature conditions are also duplicated. The tunnel can give velocities up to 500 miles an hour. The world's largest refrigerating plant, having a capacity of 20,000,000 pounds of ice daily, can lower the temperature to –48°.

Another interesting though less ambitious piece of test equipment at the NACA laboratories in Cleveland is a huge blower capable of producing a speed of 250 miles an hour. This blower, directed on the front end of an airplane, enables engines to be tried out under severe flight conditions before take-off, and greatly decreases the hazards encountered by test pilots.

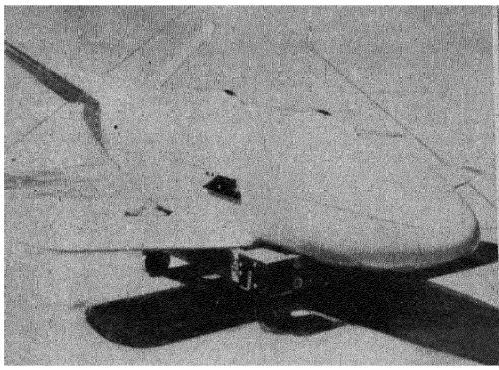
It must not be supposed, however, that the NACA has a monopoly on the development of new test equipment. Wright Field, operated by the Air Technical Service Command, has also put much new equipment into operation. For example, there is a huge rig for testing helicopter rotors by whirling them at high speeds within the shelter of carefully armored walls. Wright Aeronautical Corporation has produced the world's largest bell jar for testing ignition of the airplane engine at altitudes of five miles, conditions such as are met by the Boeing B-29. United Aircraft Corporation has also completed a wind tunnel which is said to be the most versatile in the world, one which will allow the testing of aerodynamic models at 600 miles per hour, and of 4,000-horsepower engines at 200 miles per hour.

Airplane Developments.—A highly important airplane development in 1945 was the abandonment, by the Civil Aeronautics Board, of fixed numerical stalling speed limitations. The board now required that the pilot should receive clear warning of the approach of the stall by some aerodynamic device, but recognized that the evolution of aircraft design rendered unnecessary a definite value for the stall speed or minimum flight speed. The new requirement was based on the reasoning that, while stall speed had been progressively raised from 50 to 80 miles per hour, the safety of airline operation had steadily increased. The increase in stall speed was expected to have a beneficial effect on both the performance and the load-carrying capacity of the transport airplane. The board at the same time ruled that cargo airplanes would not be placed in a different category from passenger airplanes, which was reasonable; for the safety and regularity of cargo operation should by all means be considered fully as important as passenger operation.

The most important development of the year, from the viewpoint of civil aviation, was the construction of large transports for airline use, featuring greater load-carrying capacity, much higher cruising speeds, and lower operating costs. So many aircraft of this category appeared that it is impossible to describe them all even briefly.

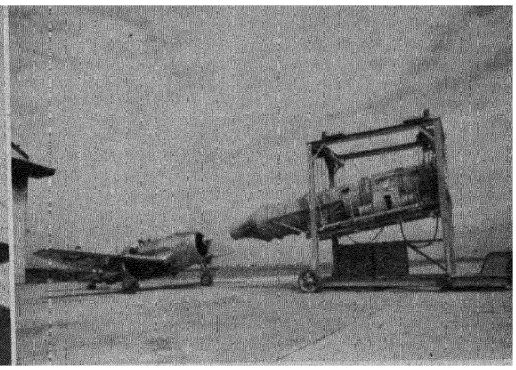
One outstanding and remarkable design is the Douglas DC-8. Here the designers have broken boldly with tradition. Two Allison V-1710 liquid-

AERONAUTICS



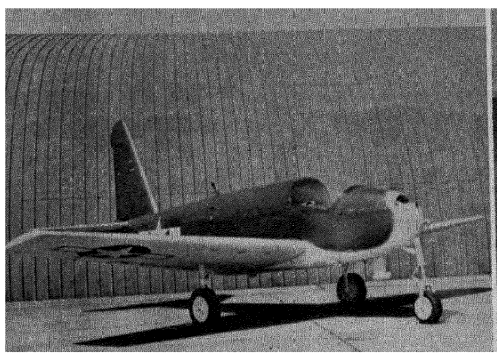
Official U S Navy Photograph

Better than 600 miles an hour is the top speed of the Gargoyle, stub-winged dive bomber less colorfully known as the LBD-1. The Gargoyle is a deadly, guided missile which wings a 1,000-pound special all-purpose bomb to the target.



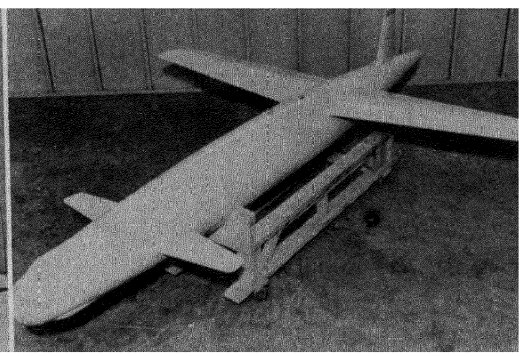
Courtesy National Advisory Committee for

The huge blower at the NACA Aircraft Engine Research Laboratory is a life saver to test pilots. Capable of producing an air speed of 250 miles per hour, the fan action of the blower permits test engines to be operated at maximum take-off power and eliminates the danger of making take-offs with untried engines.



Official U S Navy Photograph

Largest member of the trio of Glomb, Gorgon, and Gargoyle is the Glomb or glider bomber. The model shown here, the LBE-1, is the television-controlled aircraft which will stand 300 miles an hour in a dive.



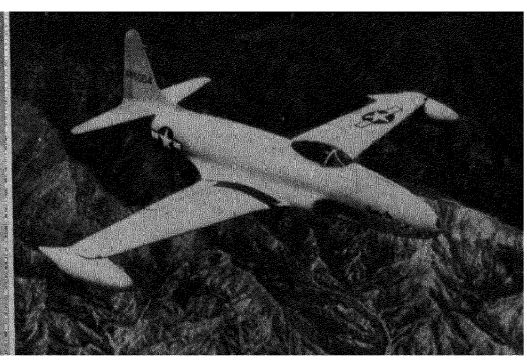
Official U.S. Navy Photograph

Its rocket power plant hurtles the Gorgon, a guided missile, through the air at 550 miles an hour. The Gorgon, resembling a freak-tailed white shark, carries a 100-pound special shaped charge.



Courtesy Kellett Aircraft Corporation

Kellett XR-8 helicopter in flight.



Courtesy General Electric Company

United States Army Air Forces' new P-80, Shooting Star.

cooled engines of 1,200 rated power are employed, and these are enclosed within the fuselage, so that the wings are entirely free of resistance-producing nacelles. The aerodynamic efficiency of the wings is thus enhanced. At the same time, the DC-8 embodies a radically new drive. From the two engines, 50 feet of shafting carries the power to the extreme rear end of the fuselage, where two counter-rotating propellers provide thrust. By this expedient the propulsive efficiency is said to be raised to a maximum; and if one engine fails, the airplane can continue flight on the remaining engine without the handicap of the offset engine thrust which is to be found in more conventional twin engine airplanes. Nothing could be more indicative of the progress achieved in American transports in recent years than a comparison of figures describing the new DC-8, and the older DC-3, which has been in service for so many years that it has become almost synonymous with airline operation. The DC-8 has a span of 110 feet, a wing area of 1,104 square feet, and a take-off weight of 39,500 pounds. The useful load is 15,585 pounds. The total rated power is 2,400 horsepower. The maximum cruising speed is 270 miles per hour at 10,000 feet altitude. Payload is 12,000 pounds, and direct operating cost is .695 cents per 200 pound-mile (that is, per 200 pounds carried one mile). In comparison, the DC-3 has a wing area of 987 square feet and a gross weight of 25,200 pounds. Having a rated power of 2,100 horsepower, it can offer a cruising speed of only 203 miles per hour. It carries a payload of only 5,600 pounds, at a cost of 1.3 cents per 200 pound-mile. In other words, the DC-8, with a little more engine power, contrives to increase speed about 35 per cent, more than doubles the payload, and cuts costs almost in half.

For a good many years land transport equipment in the United States has been provided almost exclusively by Douglas, Boeing, Curtiss, and Lockheed Aircraft, but with the termination of government contracts, other manufacturers energetically began entering the field. The Glenn L. Martin Company was among the latter, and its 30-passenger plane for short haul operation soon attracted considerable attention. The plane was available in either low or high wing models. In either case a tricycle type landing gear, with a castoring or steerable nose wheel, provided for convenience in loading and unloading, and kept the floor level at all times. The models were designed to operate over a 500-mile range at a cruising speed of 250 miles per hour, and had many distinctive features.

In less orthodox airplane developments, the year 1945 revealed one or two departures from tradition which deserve mention. Handley Page in England built a twin engine tailless machine for private flying, which seemed to have reached a more practical state of development than the earlier Northrop flying wing. Tailless machines had received much attention in Germany during the war. The arrival of jet propulsion increased interest in tailless aircraft everywhere, because the jet, having high velocity, must not produce chances of danger to the tail surfaces. Many suggestions accordingly appeared in the American and English technical press for the combination of the latest development in power plant, namely jet propulsion, with the latest development in airplanes, the flying wing.

A development which aroused great interest as a possible means of simplifying private flying was the Spratt wing, which appeared in the form of a small airplane having a fuselage not unlike a well-streamlined automobile. This model was constructed by a research division of Consolidated Vultee Aircraft. The single wing was mounted over the center of gravity of the fuselage in such a manner that it could be moved about two different axes which controlled the flight path of the ship. Tilting the wing about the longitudinal axis gave the airplane directional control. Tilting the control wheel forward or backward tilted the wing down or up, controlled the angle of attack, and hence the forward flight of the airplane. The controls thus approached the simplicity and natural character of the automobile control.

Materials.—Many advances in aircraft materials were made or announced during the year. Thus under the auspices of the Air Technical Service Command, remarkable results were achieved by fabricating a plastic sandwich, the outside of which was built of glass cloth suitably impregnated. The inner portions of the core, under the Fiberglas covering, were made of light resin-impregnated synthetic materials. It was found that the glass cloth facing material, in spite of its low specific gravity, could develop a tensile strength as high as 80,000 pounds per square inch; and that the whole sandwich offered great possibilities of resistance to buckling. Used as a lightweight fuselage skin, it gave most satisfactory test results in a BT-15 army training plane. This plastic sandwich showed greater strength under test than those made of aluminum alloy and of wood and plywood.

Fiberglas sandwich construction was not the only branch of plastics relating to aviation in which advances were made. Responding to the needs of wartime aviation, a flexible hose was developed, capable of withstanding violent vibration and the destructive action of high octane gasoline.

Another advance in aircraft materials was the development of high strength steel alloys capable of withstanding high temperatures. Under the auspices of the National Advisory Committee for Aeronautics, the War Metallurgy Committee, and the National Research Council, manufacturers of steel alloys produced remarkable new alloys which found immediate application in the turbo-jet, in the gas turbine, and in jet-propelled missiles.

Aviation also fostered developments in many light alloys. Under the pressure of the requirements of aircraft structure, aluminum alloys made their appearance, developed partly by the Aluminum Company of America, and partly by Reynolds Metals Company. These alloys had a strength approaching 80,000 pounds per square inch. In view of the fact that aluminum has a specific weight only one third that of steel, the value to the designer of such high strength qualities will be readily appreciated. The aircraft field was not left to aluminum, however. While tremendous advances had been made in the use of aluminum, and while its working and tooling up were now so well understood that designers were reluctant to leave it for other metals, experimental construction by the Dow Chemical Company showed that magnesium, which is even lighter, had great possibilities as regards facility in construction and even better local strength against buckling, which caused designers to regard magnesium as a particularly interesting metal to use in constructing the skin of wings and fuselage.

Gliders.—While soaring competitions were necessarily curtailed by the war, the year 1945 did see the duration soaring record broken. Paul Schweizer and Frank Hurtt, both of Elmira, N.Y., remained aloft 9 hours 17 minutes in a Schweizer sail plane. The previous record was 8 hours 48 minutes.

The year saw no great revival in soaring activity, though a few isolated records were broken, but disclosures were made of new devices and methods of analyzing air currents and air conditions which made the future of soaring seem more promising than ever. Instruments, such as the angle of attack indicator and the pytot-static tube on the fuselage, were produced, the latter giving the pilot improved means of analyzing conditions around him. Means for driving the turn indicator on gliders were improved, and much analytical work was done on the theory of dynamic soaring. Brakes or spoilers to control the flight path of the glider were employed more freely, and a parachute brake was used experimentally.

Military gliding recorded two specific advances which promised to have a decided bearing on the future civil uses of the glider. One was the development of the nylon rope for towing. In towing with hemp or steel cable, shocks and surges are experienced when gusts are encountered. Nylon has so much more elasticity than steel that it takes up shocks more readily. The employment of nylon rope for the towing of gliders is one reason why nylon was so scarce during the war. Experiments were also made in applying a simple jet device, the athodyd, to the launching of gliders. Since the launching and towing of gliders is a matter of some difficulty, a small practicable device for launching either soaring or training gliders is highly desirable. Another device which has been made public, though only in principle and without detailed description, is an automatic pilot for glider use.

Military uses of the glider have been sufficiently described in previous editions of the AMERICANA ANNUAL. Such uses were merely extended in scope during 1945, and airborne troops more definitely established themselves as an integral element of ground forces.

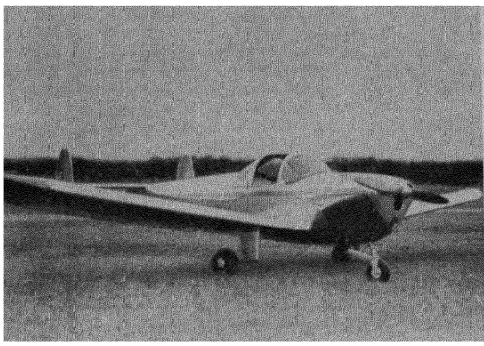
Rotary Wing Aircraft.—Perhaps the outstanding development of the year in the field of the helicopter was the successful flight testing of the PV-2 helicopter, a twin rotor machine built by PV Engineering Forum. This machine appeared thoroughly suited to the needs of ferry transportation between the heart of a great city and its airport. The PV-3, a projected commercial version of the same aircraft, was to be equipped with a 450-horsepower Pratt and Whitney engine, and with a one-man crew was intended to carry 10 passengers with a payload of more than 1,800 pounds. The top speed was estimated at 125 miles an hour and the maximum vertical rate of climb at 700 feet per minute. The normal range was estimated at 250 miles. The overall length, with rotors extended, was 84 feet. The PV is rather long because the rotors are mounted in tandem. The engine, located somewhat aft of the middle of the fuselage, drives both rotors through appropriate gears. The advantage of such an arrangement seemed to be that it is possible to provide ample room for the passengers in the fuselage and to trim or balance the machine readily with and without any passenger load. The costs of operation were estimated by the constructor, Frank Piasecki, at 5.19 cents per seat-mile. Thus the cost of operation would be higher than in the case of a large bus, but the journey from the heart of New York to Idlewild Airport, Long Island, would be only 12 minutes, and would fully justify a fare higher than that of the airport limousine.

Another helicopter developed during 1945 which aroused unusual interest was the Kellett Aircraft Corporation's XR-8, a 245-horsepower machine, the rotors of which were mounted side by side and intermeshing. While details of its performance remained secret at the end of the year, the new machine was known to have passed its flight tests satisfactorily. Release of information obtained from Germany indicated that Anton Fletter had built a similar intermeshing rotor machine, though of somewhat smaller power. The Germans also laid claim to having built the world's largest helicopter, the Focke-Achgelis, equipped with a 1,000-horsepower engine. In Austria, the Doebelhof helicopter made a number of hovering flights with the rotor driven by jet reaction. The Doebelhof jet reaction drive, however, was intended only for assistance in take-off, a conventional engine and propeller providing forward flight.

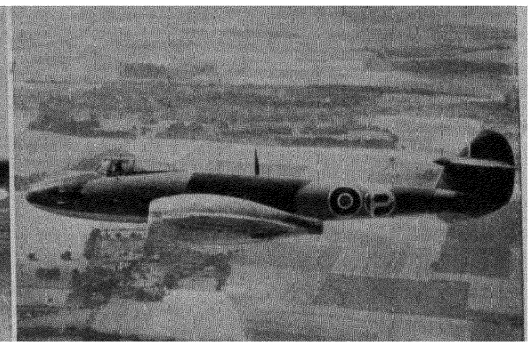
A quite novel development in rotary wing aircraft was the Rotachute, developed at Wright Field. This tiny autogiro, weighing about 50 pounds, had three freely rotating blades, a fuselage, tail surfaces, and a landing gear. It was designed to support a paratrooper and his equipment to a total weight of 240 pounds. Thanks to the tail surfaces, a paratrooper using it would be able to steer his odd craft to some extent, and therein lies its superiority over the ordinary parachute, which descends at the behest of the wind currents.

The year was marked also by the inauguration of regular rescue service of the helicopter with the United States Coast Guard, the AAF, and the navy. The Coast Guard at its Floyd Bennett Station in New York City used the helicopter in rescuing men at sea, and in assisting at accidents in localities where no other vehicle could land. A remarkable technique of hoisting operations was worked out, in which a hydraulically operated hoist was used to haul ambulances or men in a harness up to the helicopter. In the South Pacific, helicopters carried spare parts from Liberty ships to airplane repair bases located in wind or jungle territory. In Burma, harassed and wounded men in the jungle received supplies and other help by helicopter. Men lost in the wilds of Labrador were rescued by helicopter. The AAF ordered Sikorsky helicopters to be put into production before they were perfected technically because army officers were convinced of their utility in a dozen practical purposes, as in reconaissance, liaison, and supply. Finally, helicopters were landed even on the small decks of merchant vessels while the latter pitched in rough seas.

These developments led to the general conviction that in the near future helicopters would serve many industrial purposes, as in close-shot photography, surveying, mining operations, transportation of mining machinery to difficult mountain territory, in aerial inspection of power lines, and the like. It was with the conviction that the helicopter is already practicable for such industrial uses that the Bell Aircraft Corporation prepared to produce 500 of these machines in 1945. The Bell helicopter was provided with an inertia stabilizer device which was said to be highly effective, and the machine proved successful in many ways.



Courtesy Engineering and Research Corporation
Ercoupe A-18.



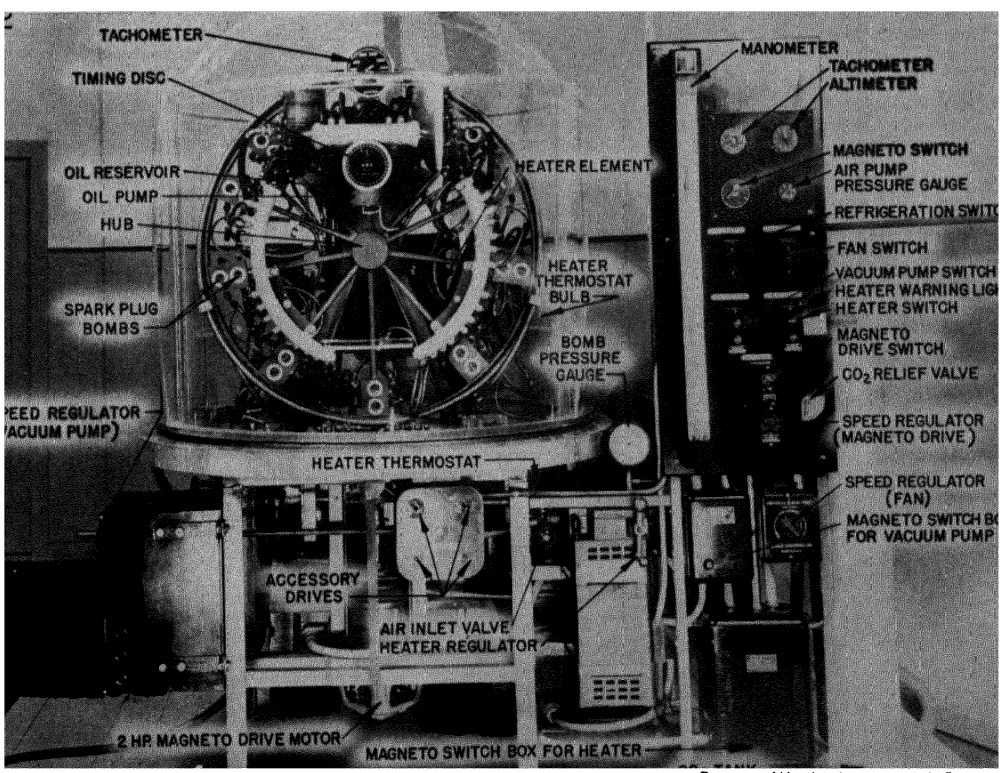
Courtesy Brit[illegible] n Service
The RAF Meteor.



Courtesy Sikorsky Aircraft Division of the United Aircraft Corp.
The Sikorsky helicopter in flight.



P. V. Engineering Photo
PV-3 helicopter in flight.



Courtesy Wright Aeronautical Corporation
Front view of the Wright Aeronautical Corporation's new altitude ignition tester, illustrating the component parts.

The future of the helicopter in transport service and in feeder lines seemed so promising that the Civil Aeronautics Board constantly received applications for the operation of helicopters in short hauls, with the Greyhound Bus and Yellow Cab Companies among the applicants. At the end of 1945, however, there was little prospect that the helicopter would soon be available to the public as a family machine or as an aerial jitney.

The ability of the helicopter to land in restricted space and to rise vertically would seem to make it the ideal vehicle for the man in the street, but in reality the helicopter is difficult to fly because, in addition to manipulating the ordinary airplane controls and the throttle, a fifth control, namely the pitch lever, has to be co-ordinated with the other controls. Again, the helicopter seems to have little static or dynamic stability, so that it has to be continually "flown" by the pilot, who accordingly receives a feeling of insecurity and fatigue. And since, in addition to the parts which are needed in the airplane, there are also needed a transmission, clutches, free-wheeling devices, and the like, it seems likely that the helicopter, for some time to come, will cost an appreciable sum, perhaps as much as $25,000 for a four- or five-place machine.

Engines.—While the conventional reciprocating engine will remain important for a long time, and will continue to power both light planes and transports for a good many years, the main interest in powerplant development shifted in 1945 to jet propulsion and rockets.

Originally, research in rockets was undertaken by both the AAF and the Navy Bureau of Aeronautics for the purpose of assisting takeoff, especially in the case of planes rising with heavy loads to make short trips, or from the decks of aircraft carriers. Rockets, by which are meant tubes containing combustible compositions generating gas, the escape of which, in a jet, propels the aircraft or missile to which they are attached, were used in many ways. In the last few months of the war, jet or rocket propulsion was used in winged missiles having extended range (as in the case of German V-bombs); in guided antiaircraft missiles; in launching supersonic, long-range pilotless or manned aircraft; and in aircraft having high landing speeds, which used rocket propulsion as a deceleration device.

In the field of rocket or jet propulsion, which in 1945 was apparently in its infancy even though it had made astounding advances, General Arnold suggested the following classification and curious terminology.

(1) Motor jet or reciprocating engine plus ducted fan. By this, presumably, is meant a reciprocating engine driving a compressor, the latter supplying air to a combustion chamber, with the products of combustion issuing as a jet. Such a term could also cover the ordinary reciprocating engine driving a propeller and a supercharger, with the products of combustion leading through a duct to issue as a thrust-producing jet.

(2) Turbo-prop—a gas turbine plus propeller. The presumption is that this means a gas turbine driving an ordinary propeller.

(3) Turbo-fan—a gas turbine plus ducted fan.

(4) Turbo-jet—a gas turbine plus jet. This is a type of engine in which a gas turbine drives an air compressor, which supplies air to a combustion chamber. The products of combustion then issue as a thrust-producing jet.

(5) Ram-jet—a continuous jet with compression by aerodynamic ram. This is the simplest type of jet propulsion engine. The engine, in the form of a carefully shaped venturi, receives air, which by virtue of its great speed receives a certain amount of compression. The fuel is injected into this slightly compressed air, and the products of combustion issue as a jet. The athodyd, as the ram-jet is otherwise known, has great simplicity but also low efficiency.

(6) Pulso-jet, or intermittent jet. This is the class to which the engines of the German V-bombs undoubtedly belonged. Admission of air under the pressure of forward flight occurs only when the products of combustion have left the firing chamber and produced their thrust. Combustion and increase of pressure occur only when the air admission valve or port is closed. Such an engine functions more promisingly than the continuous jet, except at the highest conceivable speeds.

In the jet engine field, developments came so rapidly that in 1945 confusion existed not only in the minds of the public but also amongst those technicians who were not themselves specialists in the field. The turbo-jet, gaining constantly in power, received one major improvement during the year: the substitution of the axial flow compressor, built by Westinghouse, for the centrifugal compressor previously employed. The axial flow compressor permitted the power eggs to be of smaller diameter, and accordingly decreased the aerodynamic loss. The power of jet engines in various forms constantly increased and authorities predicted the production of 10,000 horsepower in a single unit and the application of the turbo-jet to commercial aircraft. Papers delivered before the American Society of Mechanical Engineers and the Society of Automotive Engineers defined more clearly the functions of the various types of jet systems. For conventional airplanes of low or medium speed and power, it was generally agreed that the conventional reciprocating engine would remain as the mainstay of practical aviation for many years to come. For planes of considerably higher speed, it seemed likely that there would be employed turbines with geared-down propellers, while the exhaust gases would be led into a duct and exit from a nozzle. The Republic Aviation Corporation's four-engined Rainbow, which developed 400 miles an hour, employed an ordinary reciprocating engine but utilized the exhaust gases to such advantage that an extra 200 horsepower for each engine was thereby secured. The Republic Rainbow was purchased by Pan American Airways for transoceanic operation. Another possible combination which appealed to constructors was the use of a gas turbine driving a geared propeller, and giving a variable proportion of its power to a compressor supplying air to a combustion chamber with a jet-producing additional thrust. Such an arrangement would allow the major part of the power to be given to the propellor at take-off and climb, the major part of the power to be diverted to the jet at high speeds, when the jet becomes truly efficient. Finally, for very high speed aircraft, the turbo-jet with axial flow compressor would, it was thought, become the best source of power.

The turbo-jet did not cease to secure fresh victories in 1945. Bell Aircraft built and flew a turbo-jet airplane which surpassed the Air-

comet in every way. The Lockheed Shooting Star, or P-80, heavily armed and affording splendid vision, was said to be able to attack the enemy at 550 miles an hour. The British Meteor, equipped with two turbo-jet engines, established a world's record of 606 miles an hour. Ryan Aeronautical Corporation brought out, under the auspices of the navy, a remarkable jet fighter presenting an engine combination differing from those thus far described. The Ryan Fireball, which did not see combat but gave a convincing demonstration of its power in test flights at Washington, D.C., had a Wright Cyclone engine in the front driving a conventional propeller, and a General Electric jet-propulsion engine in the rear. Thereby great climb and splendid take-off were combined with a tremendous burst of speed at altitude and in level flight. Great firepower and generally conventional appearance characterized the Ryan Fireball. It was only the nozzle at the extreme rear end of the fuselage which distinguished it from the ordinary, conventional, low-wing, single-seater fighter. Four .50-caliber machine guns and two 1,000-pound bombs could be carried under the wings. Steel armor plate and laminated bullet-resistant glass in the windshield front panel protected the pilot.

Accessories and Equipment.—Little by little the AAF and the Naval Air Services released information on a variety of devices of high utility and obvious application to civil aviation. The number of such devices was so great that only the most important of them can be mentioned here, and those but briefly.

The automatic pilot for aircraft was not new, since its inception went back prior to the First World War; and the gyro, which maintains its fixed equilibrium in spite of all the maneuvers that the plane can perform, was always its primary unit. But the electronic autopilot now displaces the automatic pilot, in which the signals of the gyro were transmitted to the control surfaces by hydraulic means. In the electronic autopilot, the relative displacements, or the rate of displacements between the plane and the pilot, were picked up electronically and then amplified into a force strong enough to actuate the controls. It was claimed for the electronic pilot that it was faster and more precise in action, less vulnerable to gunfire, immune to weather effects, and more precise in bombing.

Another device of electronic character which passed off the secret list during the year was the so-called formation stick. In precise formation, flying the ordinary control stick or control wheel had always imposed fatiguing loads on the pilot, particularly in gusty weather. Control was regulated by a formation stick, a pistol-gripped lever about 10 inches long, free to move in all directions, much like the joy stick of a pursuit plane. Through amplifications of the electric variations introduced by the action of the stick, and with the aid of the servo motors of the control surfaces, the stick moved the airplane in the direction of its displacement. A stabilizing mechanism was added to give the pilot "feel."

Another electronic device, first developed for military purposes, and now presumably released for the benefit of commercial aviation, was an electronic cabin temperature control. The primary unit in this case was a small coil of wire installed in the air duct bringing air into the cabin. Temperature fluctuations of the air changed the electric resistance of the wire, and these changes, suitably amplified by electrical means, opened or closed a damper, proportioning the amount of outside air with the heated air from the plane's heating system. The Minneapolis-Honeywell cabin control maintained the cabin temperature at 70 degrees in spite of extreme atmospheric fluctuations.

Still another example of electronic control was disclosed in the form of a supercharger regulator, in which the exhaust gases of the engine drove the turbine, which itself rotated the supercharger. The speed of the supercharger increased with altitude, and a pressure unit at the carburetor opened or closed a waste gate.

In fighting ice formation, an electronic device measured the thickness of the ice forming on the leading edge of the wing and enabled the pilot to vary the frequency of the pulsations of pressure and suction which operated the de-icing boots used to fight the ice formation.

The year saw restrictions lifted on a number of safety devices which fully proved their worth during the war and found immediate application in civil aviation. The anticollision system was devised, based on a combination of radar and electronic principles, which undoubtedly would have prevented the terrible accident in which an army bomber struck the Empire State Building in New York City on July 28, 1945. A variety of applications of radar and television were described publicly, in principle if not in great detail, which promised to do much toward permitting safe landings and take-off in conditions of poor visibility. Fog remained a cause of irregularity, but both the navy and the British developed fog dissipation methods which gave hope of making flying very much safer and more reliable in foggy weather. British agencies revealed the almost fantastic story of "Operation Fido." Fido stood for Fog Investigation Dispersal Operation. Since first brought into use, Fido aided more than 2,500 Allied aircraft having a combined crew total of 10,000 men, to land safely in dense fog. The latter danger proved more menacing than German flak; and Fido gave the necessary safety. It was discovered that if the heat of the atmosphere could be raised 7° F. at an airport, the fog disappeared. This heat was provided by a continuous line of petroleum burners installed parallel to, and some distance from, either side of the main runway. Standard fog dispersal installations consisted of three main portions—burner lights, pumping, distributing, and storage. It was found that in normal operation, fog could be cleared in 10 minutes.

Other safety devices included an electronic height indicator which was free from the variations of an ordinary altimeter under changing atmospheric conditions; harness safety belts, heated clothing, position indicators, and automatic ejectors from jet-propelled airplanes.

Civil and International Aviation.—While keen competition was expected among the airlines of various countries, particularly between those of the United States and Great Britain, international co-operation in many matters was also expected. Thus there was established, under the presidency of Dr. Edward P. Warner (who resigned from the Civil Aeronautics Board to accept this new post), the Provisional International Civil Aviation Organization (PICAO). Early in November, Greece had accepted the interim agreement, becoming the 37th member of PICAO. After weeks of laborious study by its subcommittees, the new international body was

in general agreement as regards international rules of the air, operating standards, and airworthiness standards for aircraft. It was expected that American standards, the highest in the world, would be followed. The PICAO also endeavored to preserve vital air facilities which the Second World War brought into being. While the International Civil Aviation Organization was governmental in character, the International Air Transport Association was representative of the airlines themselves, in particular of Pan American Airways and of the British Overseas Airways Corporation. In addition to technical matters, this latter body proposed to discuss fares and other competitive matters.

One of the civil aviation developments confidently expected in 1946 was an enormous increase in the carrying of air cargo. Air transport operators were in general most hopeful of the future. In their expanded postwar fleets, 19 airlines of the United States expected to have 975 planes operating at higher speeds than formerly. This fleet was expected to include many new comforts, and to seat 36,180 passengers. To meet this huge program the airlines ordered or had an option on 407 new planes.

The growth of facilities for air cargo, however, was expected to be proportionately higher than that for carrying passengers. During 1944, the airlines carried a total of 202,879,006 pounds of mail, express, and excess baggage. With the new equipment, cargo capacity was expected to increase fivefold.

During the war years, costs for carrying passengers and freight could not be reduced because of the use of the same type of equipment, and its availability on a restricted scale. The year 1945 saw the advent of far larger and faster aircraft able to operate at much lower costs. An authoritative study by Fred B. Collins of Boeing Aircraft indicated that the large postwar transports might reduce prevailing operating costs of 17 cents per ton-mile to about 4 cents per ton-mile. At the same time there were indications that passenger costs might also drop from 2.5 cents per passenger-mile to as low as .8 cents per passenger-mile. Reduction in costs, in fact, was already being reflected by reduction in fares.

During 1945 the airlines and the Civil Aeronautics Board also considered transoceanic civil flying on a more liberal scale. Pan American Airways announced ambitious plans for cutting the time and costs of air travel to Rio de Janeiro and Buenos Aires. In view of the fact that European countries would likely establish government-owned transatlantic lines (the English government had already taken steps to nationalize all its airlines and civil air facilities in general), Pan American Airways energetically sought to have itself established as the nation's chosen instrument for the international operation of aircraft. This policy, however, was overridden; and the Civil Aeronautics Board, in a number of certificates granted during the year, established the principle that the United States international lines would be regulated, but would be allowed to remain competitive.

Another important development of the year was the announcement made by all airlines concerned with transatlantic air travel—namely Pan American Airways, Transcontinental and Western Air, and American Airlines (which was permitted to absorb American Export Airlines) —that land planes would be used instead of flying boats. At the time the announcement was made, Pan American and American Export Airlines were still employing flying boats: the Boeing 314 and the Vought Sikorsky Flying Ace. The landplane, it was explained, was faster, more economical, and could be operated at a much lower cost than the flying boats. Moreover, when four engines are used, it was possible to fly a landplane indefinitely on any two of the four motors. The prevailing flying time from New York to London in flying boats was roughly 24 hours. It was expected that use of the new equipment, such as the interim Douglas DC-4's, the tremendously speedy Lockheed Constellation, and the six-motored Consolidated Vultee transport, would increase the number of passengers carried to a maximum of 200 per plane, and would cut the flying time to London or Paris to about 11 hours. The airlines were full of confidence and energy, and expected that the great bulk of first-class steamship travel would eventually be theirs.

The use of aviation in transmitting television and frequency modulation was one of the achievements of the year. Even before the war ended, equipment for television and FM had reached a high degree of perfection, but there remained the difficulty of broadcasting such programs on a nationwide basis. Because of the ultrahigh frequencies employed, television and FM waves travel only in straight, "line-of-sight" direction. They do not bend around the earth's surface as do the waves of standard band radio. This limited the range of stations to a maximum of 50 miles, even when the station was placed on top of the highest building. Radio-relay stations would have solved the problem except for their prohibitive cost. Westinghouse Electric Corporation engineers found a practical solution by broadcasting programs from airplanes flying six miles above the earth's surface. At this altitude, a single "stratovision" plane could cover an area of 422 miles in diameter, or 103,000 square miles: approximately the combined area of New York, New Jersey, and Pennsylvania. It was anticipated that 14 of these flying stations would be able to transmit a given program to 78 per cent of the nation's population. The airplane to carry such equipment, developed by the Glenn L. Martin Company, solved such problems as endurance, supercharging of the cabin for crew comfort, maximum reliability, and complete insulation of the transmitting equipment against noise.

Private Flying.—The war brought into being a vast number of airports. Legislation before both the House and the Senate was intended to entrust to the Civil Aeronautics Administration (CAA) the construction of a great many airports and landing fields at a cost running into several hundreds of millions of dollars. Oil companies, foreseeing the days when private flying would be of vast importance, constructed or rented small airports and equipped them with fuel, oil, and servicing stations particularly equipped to meet the needs of the private flier. Air strips or the use of roads near air service stations were suggested repeatedly. The return of hundreds of thousands of men from the AAF and the Naval Air Service guaranteed that there would be a large number of young air minded men anxious to fly. It was pointed out, however, that these would not be combat pilots. Most combat pilots declared with every evidence of sincerity that they had had enough flying, which they associated with danger, discomfort, and the death of friends. It was men from non-

combat branches, from training and maintenance staffs, who sought to fly in civil life.

The aircraft industry during the war learned a great deal about production methods, but small aircraft engines had not begun to be built on a mass scale in 1945, and their prices remained high. The cost of instruments and accessories also remained high under the influence of the wartime feeling that the government could well afford to pay high prices. Late in the year, however, the Kollsman Instrument Company announced a line of aircraft specially designed and priced to meet the needs of the private flier. Bendix Radio and one or two other radio manufacturers gave attention to the production and marketing of low priced two-way radios for the private flier, to cost no more than $150. This development was of importance because it is only when the private flier is supported by a two-way radio that he is able to make full use of control towers, beams, broadcasting stations and other facilities. Insurance companies endeavored to lower the cost of insurance. A type of airplane, such as the well known Ercoupe, appeared on the market in which the rudder had disappeared, control being exercised simply through aileron and elevator. In such two-control, nonspinnable airplanes, soloing was permitted by the CAA after only five hours dual instruction. The tricycle landing gear was recognized as an element of safety and simplicity for the low-power plane, since it permitted landing in a cross wind. The specification of the Ercoupe was fairly typical of what the purchaser could expect in this type of craft: engine, 75 horsepower, four cylinder opposed; gross weight, 1,285 pounds; useful load, including pilot, 170 pounds; passenger, 170 pounds; fuel, 138 pounds; oil, 7 pounds; baggage, 50 pounds; total useful load, 535 pounds. Fuel mileage, 20 miles per gallon; cruising range, 500 miles; cruising speed, 110 miles per hour; maximum speed, 127 miles per hour; rate of climb at sea level, 750 feet per minute.

A new development in lighting airports was announced in November at the Idlewild Municipal Airport of New York City, where an "aisle of light," consisting of two towering walls of illumination shooting skyward flanked a broad runway 8,400 feet long. The new lighting system, developed in conjunction with Westinghouse Electric Corporation engineers, promised to help make the gigantic new landing field an all weather haven for pilots of transcontinental aircraft. See also ELECTRICAL AND ALLIED DEVELOPMENTS.

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AFGHANISTAN. A kingdom of Asia, lying east of Iran and west of British India, with an area of about 250,000 square miles and a population of approximately 12,000,000, of which the majority are Sunni Moslems. Pushtu and Iranian are the dominant languages, the former being the official language. Kabul, the capital, has about 150,000 inhabitants. Other cities are Kandahar, 60,000; Herat, 50,000; and Mazar-i-Sharif, 30,000.

Government.—Afghanistan is a constitutional monarchy, Mohammed Zahir Shah (b. 1914) succeeding to the throne on Nov. 8, 1933. Complete independence of the country was recognized by Great Britain in 1921. Legislative power is vested in a parliament consisting of king, Senate, and National Assembly; the National Assembly has 109 elected members, and the Senate is composed of members appointed by the king for life. Tribal organization continues to play a role, less and less important, under the gradually strengthened central government. A governor heads each of the five major and four minor provinces into which the country is divided. Afghan budgets are not published, and consequently no accurate information is available concerning the revenue of the country. It is believed, however, to be derived chiefly from customs duties, land taxation, and the earnings of government monopolies, principally the karakul monopoly. The laws are based on the Hanifi code of the Shariat (Moslem religious law), which derives from the Koran, the deeds and sayings of Mahomet and his disciples. There is a system of three regular courts and an Arbitration Court. Afghanistan exchanges diplomats and has commercial agreements with other countries. The first United States minister to Afghanistan presented his credentials to the Kabul government in July 1942, and the first Afghan minister to the United States arrived in Washington in May 1943. Although, as a result of pressure from the United Nations, most unofficial Axis agents were expelled from the country after outbreak of war, the Japanese continued to maintain large diplomatic and consular staffs in Afghanistan.

Education and Public Health.—There are free elementary schools throughout the country. Secondary schools (also free) were reported in 1945 as limited to Kabul and the provincial capitals. Primary schools were being established in almost all villages in most of the provinces. Kabul, besides its secondary schools, has two training schools for teachers and three military schools. Kabul University, established in 1932, has faculties of medicine, chemistry and law. The country also has some technical, art and commercial schools.

The government is engaged in a program for the promotion of public health, including training of doctors and nurses in government institutions, free examination, treatment, and medicines in government hospitals and traveling clinics. Special attention is given to public health work in schools and industrial establishments.

Production.—Despite the fact that it is essentially an agricultural country, as a result of its mountainous and desert terrain, and lack of water, only about one fifth of the area of Afghanistan is under cultivation. Rainfall is slight, and dams are being built to harness mountain streams in the interest of irrigation as well as for providing power. The most important crops are cotton, fruits, grains, opium, pulse, and tobacco. Grapes and melons are important articles of diet, and a leading export commodity, particularly to India. Medicinal and industrial plants found in commercial quantities include asafetida (asafoetida), castor oil plants, cumin, gum tragacanth, manna, and madder. Livestock, notably sheep, are a main source of wealth. The native fat-tailed sheep furnish mutton, grease which is used as butter, and wool which is used locally to make "Afghan carpets" or is exported as carpet wool. Afghanistan's principal export commodity is "Persian lamb," the skins of still-born or baby lambs of the karakul sheep.

Native industry is of the handicraft type, small plants producing cotton, silk, and woolen cloth, shawls, sheepskin coats, carpets and rugs, copper vessels, iron work, and gold and silver ornaments. The government controls or owns all

mechanized industry under a system of monopolies, these including such activities as sugar and cotton manufacturing, the generation of electricity, and stone-cutting; some companies dealing in miscellaneous goods also enjoy monopolies in certain areas.

Minerals occur in wide variety, including coal, iron, copper, lead, gold and silver, asbestos, mica, sulphur, fine lapis lazuli and other precious stones, and petroleum; but actual surveys, although incomplete, have failed to bear out the assumption that these minerals are in great abundance. An American oil concession was recently given up before production began. Facilities for production of electric power have been developed to a limited extent, but many sites as yet remained unutilized.

External Trade.—One fifth of the commerce is with the Soviet Union, generally a direct exchange of goods between the two countries, and the remainder moves to and from India, much of it "in-transit" trade with third countries. The principal exports are karakul skins, fresh and dried fruits, nuts, vegetables, and raw cotton, and those of lesser importance include asafetida, carpets, live animals, and wool. Exports of karakul skins from Afghanistan to the United States through the port of Karachi, India, in 1940 were valued at Afghan Rs. 374,391,600; and exports of carpet wool to the United States had a value of Afghan Rs. 14,638,320. Some three quarters of the imports consist of automotive equipment, cotton textiles, gasoline and kerosine, machinery and millwork, sugar, and tea. Besides automotive products, imports from the United States include pharmaceutical products, photographic supplies, radios, and sewing machines.

Currency and Banking.—The official currency unit is the afghani, containing 10 grams of silver, 900 fine, and divided into 100 puls. In 1945, 13 to 13½ afghanis were approximately equivalent in exchange value to the United States dollar. Paper notes in denominations of 5, 10, 20, 50, and 100 afghanis are issued through the Bank of Afghanistan, which also handles all foreign currency accounts, foreign exchange transactions, and all bank accounts of government institutions. The Afghan National Bank, a joint-stock banking company established in 1933, confines itself to commercial banking, maintenance of savings accounts, safe deposit services, commercial and personal loans, buying and selling of shares in Afghan commercial enterprises, and the financing and handling of foreign-trade transactions for Afghan exporters; the bank has branches in the United States and in various European countries.

Communications.—There are no railroads in Afghanistan. The Indian railroad system extends through Quetta as far as New Chaman, on the frontier; and Kushk, across the northern border, is the terminus of a railroad of the Soviet Union. A chain of motor roads extends around the country; while the condition is not good, most roads are passable in good weather, and some in all weather. Despite vast improvements, most of the routes of traffic in Afghanistan are still caravan trails. Scheduled air transport lines serve Kabul, which also has wireless communications with other parts of the world.

AFRICA. Second in size of the six continents, lies in the eastern hemisphere. Including adjacent islands, the area is about 11,700,000 square miles, and the population is estimated to number approximately 158,000,000. Within Africa are the kingdom of Egypt, the native empire of Ethiopia, the republic of Liberia, and the autonomous Union of South Africa. The greater part of the continent, however, is under French, British, Portuguese, or Spanish administration, Italy having lost her territories during the war; France administers the largest, though not the most fertile, area. See articles on the several countries and divisions of Africa.

AGRICULTURAL ADJUSTMENT AGENCY (AAA). (Now the FIELD SERVICE BRANCH.) Established in 1933, the AAA was one of the agencies of the Department of Agriculture grouped into the War Food Administration which carried out the wartime food program. Under the Department of Agriculture reorganization Aug. 20, 1945, AAA became the Field Service Branch of the Production and Marketing Administration. Objectives of the agency are: (1) to restore and maintain all soil resources on farms; (2) to guide farmers in producing agricultural commodities in the amounts needed; (3) to stabilize farm prices and income.

Administration.—The AAA program is administered nationally by the Field Service Branch in Washington, by AAA state committees appointed by the Secretary of Agriculture, and by AAA county and community committeemen elected by neighboring farmers who, by co-operating in the program, automatically become members of county conservation associations. Almost 4 million agricultural producers, operating 73 per cent of the United States cropland, in the more than 3,000 agricultural counties, took part in the 1944 program.

AAA committees also handle the local administration of commodity loan programs (made available through the Commodity Credit Corporation), and special programs of production payments to dairy farmers, beef cattle, and sheep and lamb producers. During the war years, they brought the War Food Administration and other federal agencies into touch with farmers for such war programs as rationing of farm machinery and supplies, facilitating the transportation and distribution of feedstuffs, certifying producers to get materials for essential farm construction, and making recommendations to other local boards on farmers' needs for tires, off-highway gasoline, and tractor fuel.

Goals.—During the war, the "production goal" idea, formerly used by AAA for major crops, was applied to all crops and livestock. Now being used as a convenient means of converting agriculture to peace, the goals help farmers to plan their individual production in line with national requirements. The Department of Agriculture determines the estimated requirements for individual farm commodities and presents them to state goal committees. Acting on this information, state groups set crop and livestock goals, the totals of which become the national goals. Some state goals are later broken down into county goals. AAA committeemen help individual farmers plan their production in line with the goals. The goals for 1945 called for planting almost 364 million acres, about 9 million more than were planted in 1944.

Conservation.—While the AAA conservation program for 1945 emphasized practices which would increase farm production quickly, attention was also given the larger and permanent conservation measures. Farmers could earn program payments, either in cash or in the form of conservation materials or services, for those practices which would increase yields or maintain future soil fertility.

Approved practices varied by states and counties according to local conditions, but generally they were those which would (1) increase yields of products required in the war program; (2) conserve and improve soil fertility; (3) promote conservation and better use of water; (4) conserve and increase range and pasture forage; and (5) prevent wind and water erosion. Of particular importance, in view of national production needs, was a practice to encourage increased harvesting of grass and legume seed.

Under the 1944 agricultural conservation program, the following major practices were carried out: Application of nearly 2 million tons of 20 per cent superphosphate and almost 24 million tons of limestone; striperopping on more than 6 million acres; constructing approximately 450 million linear feet of terraces; use of 23 million acres of green-manure and cover crops; harvesting over 6 million acres of legume and grass seed; renovating more than 2 million acres of perennial grasses and legumes; moving almost 127 million cubic yards of dirt in constructing dams and reservoirs. The 1944 program was carried out on nearly 3½ million farms, and conservation payments totaled nearly $294,000,000.

Allotments.—With war requirements outstripping potential production, acreage allotments, an AAA tool which farmers formerly had used to adjust crop production of basic crops to market demands, were used only for tobacco in 1944. Tobacco also was the only crop marketed under quotas, after their use was approved in referendum, as provided by law, by more than two thirds of the growers voting.

Production Payments.—To increase milk, and later, meat production, special payments were made to producers of these commodities. For the fiscal year ending June 30, 1946, the allocation for dairy payments is $568,000,000 plus a 10 per cent tolerance. The beef payments allocation was $40,000,000 for 1945. Sheep and lamb payments were expected to amount to about $36,000,000 in 1945.

Production.—Indications in September were that 1945 crop production would be about the same as in the two record years, 1942 and 1944. In 1944, farmers broke food production records for the eighth consecutive year. While favorable weather helped, record food production in recent years has been due in large measure to increased yields stimulated by the practice of conservation methods of farming. Yields in the war years, 1941–44, were one fourth greater than average yields for the predrought period, 1923–32. Total farm output in 1944 was above the highest reached during any year of the First World War.

Loans.—Crop loans, administered locally by AAA committees, were made in 1945 on corn, wheat, cotton, rice, tobacco, soybeans, flaxseed, dry beans and peas, potatoes, sweet potatoes, barley, grain sorghums, rye, hay, and pasture seeds, and naval stores.

Crop Insurance.—Authorized by Congress late in 1944, federal crop insurance for wheat, cotton, flax and "trial" crops (corn and tobacco in 1945) is being made available to farmers through AAA committeemen.

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AGRICULTURAL AND INDUSTRIAL CHEMISTRY. See AGRICULTURAL RESEARCH ADMINISTRATION; CHEMURGY.

AGRICULTURAL CHEMICALS. See CHEMISTRY.

AGRICULTURAL ENGINEERING. See AGRICULTURAL RESEARCH—*Bureau of Plant Industry, Soils and Agricultural Engineering.*

AGRICULTURAL RESEARCH ADMINISTRATION. Established as a major unit of the United States Department of Agriculture in December 1941, the Agricultural Research Administration supervises and directs most of the department's scientific research work. It determines research objectives and co-ordinates the various projects undertaken. It comprises 7 bureaus and agencies engaged in research and regulatory work, 4 regional research laboratories, and 9 Bankhead-Jones laboratories, so named from the Congressional legislation which created them to deal with special agricultural problems. The Research Administrator, P. V. Cardon, also acts as liaison officer on research activities co-operative with other public and private agencies.

Through its various scientific findings the Agricultural Research Administration aids farmers, professional and industrial groups, and the public generally in improving methods, reducing losses, developing new products, and otherwise increasing individual welfare and the nation's resources.

The units of the research administration include: Bureau of Agricultural and Industrial Chemistry; Bureau of Animal Industry; Bureau of Dairy Industry; Bureau of Entomology and Plant Quarantine; Bureau of Human Nutrition and Home Economics; Bureau of Plant Industry, Soils, and Agricultural Engineering; and the Office of Experiment Stations. The agencies named have immediate direction of the work conducted at the regional and other research laboratories and at the department's Agricultural Research Center, Beltsville, Md., about 13 miles from Washington, D.C.

Brief accounts of the work at each unit, including noteworthy results of 1945, follow:

Bureau of Agricultural and Industrial Chemistry.—The Bureau of Agricultural and Industrial Chemistry, under the direction of its chief, O. E. May, conducts research on the industrial utilization of agricultural commodities, and on the commercial processing of food and feed raw materials. It operates the four regional research laboratories authorized by Congress in 1938 to search for new and wider industrial outlets for farm crops and separate research divisions on naval stores, allergens, enzymes, microbiology, liquid motor fuels, and agricultural chemical investigations. All of its investigations, except those on allergens and biochemistry, which are carried on in Washington, are quartered in the regional laboratory buildings, or the bureau's more than a dozen field stations located in various parts of the country.

During the war the bureau had more than 1,000 persons at work in its various laboratories on projects dealing with the use of agricultural commodities in the war effort. The program included work on soft-grit blasting materials, liquid motor fuel, penicillin, rot-resistant fabrics, vegetable waste leaf meal, peanut glue, smokeless powder, and more than 100 other projects.

One of the latest agricultural developments to come out of wartime research is the use of ground crop wastes in the new air-blasting method for cleaning carbon deposits from cylinders and pistons of aircraft engines. "Soft grit" made from finely ground corncobs or similar farm waste is the material used for this purpose. The method for using waste material for removing carbon was worked out by scientists of the bureau's Northern Regional Research Laboratory, at Peoria, Ill., in

close co-operation with the Assembly and Repair Department of the Naval Air Station at Norfolk, Va. Considerable man hours can be saved by using this method which makes it possible to clean from 4 to 10 times as many parts in a day as by the old method of scraping by hand, turning on lathes, and sandblasting which frequently damaged the parts. Good results are obtained by using a mixture of 60 per cent of corncob grits and 40 per cent of rice hulls. These materials have been adopted by the navy, which is taking the entire output of one factory that is making the grit according to the desired specifications.

As a result of research by bureau scientists a process for the chemical conversion of such agricultural residues as corncobs, sugarcane bagasse, peanut shells, flax shives, oat hulls, and cottonseed hulls and burs into liquid motor fuel is now moving into large pilot-plant production. Experimental tests indicate that from 90 to 95 gallons of liquid motor fuel can be obtained from a ton of corncobs or cottonseed hulls, and that something like half of this is in the form of ethyl alcohol. A continuous process for the treatment of corncobs and cottonseed hulls has been worked out, and a suitable building where the method can be tried out on a semi-commercial scale is being constructed on the grounds of the Northern Regional Research Laboratory. Corncobs will be the first of the so-called waste materials to be tried on a large scale in the new plant. Investigations on other residues will be begun later as the work progresses. It has been estimated that something like 200 million tons of farm wastes are produced each year. A considerable amount of this is plowed back into the soil to help maintain fertility and prevent erosion, but after this is done there is still around 100 million tons left that might be available for making motor fuel under this new process. The establishment of an industry that would utilize even a part of this large amount of waste material should help the producers of these residues. That is the object of the research.

Penicillin was still in the laboratory stage in the summer of 1941 when the problem of increasing production was presented to bureau scientists. The Bureau of Agricultural and Industrial Chemistry was selected to work on this problem because some of its scientists have had years of experience in the use of molds in the fermentation field, and because it has in one of its four regional laboratories one of the largest collections of molds in the world. By selecting better strains of molds and feeding them on a new diet composed largely of corn steeping liquor and milk sugar, the investigators were able to quickly increase the yield of penicillin more than 100 times. This permitted the immediate production of penicillin on a commercial scale which rose from nothing in 1941 to 21 billion Oxford units in 1943, and to 3,035 billion units during the first 6 months of 1945. Increasing the production soon affected the price of penicillin. In 1943 the price was $20 per 100,000 units, the amount required to treat serious types of infection. It has been dropping steadily ever since. This research not only made an important life-saving drug available to the armed forces and civilians much sooner than otherwise would have been possible, but it doubled the outlet for a by-product of the farm.

A new modified cotton fabric that will not mildew or rot is the result of wartime research in the Southern Regional Research Laboratory, at New Orleans, La. This new material has the strength and appearance of ordinary cotton plus the ability to withstand the attacks of rot-producing micro-organisms. As a test of the rot-resistance of this new material some of the treated cloth and thread were buried in the ground or in especially prepared soil beds teeming with the kind of micro-organisms that would cause ordinary cotton to rot within a week. These tests showed that the treated cloth could remain buried under such conditions from 6 months to a year with very little loss of strength. Sandbags made from the treated cloth, sewed with treated thread and piled outdoors on the ground, were intact after 2 years of exposure to the weather in the New Orleans climate. The preservative used in this method does not cause discoloration of the fabric. It does not produce an odor, or stickiness, and does not make the fabric toxic, a great advantage when the treated cloth is used for food sacks.

This new development gives promise of being useful in two separate fields, each of which consumes considerable quantities of cotton. It is promising for making rot-resistant bags for the packaging of fruits, vegetables, and other food products. The treated cotton cloth, yarn, and sewing thread promise to be suitable for making clothing that will not mildew, tents and awnings that will not rot in damp climates, and fish nets that will not rot if put away wet.

Broilers fed on broccoli-leaf meal produce fine-flavored meat, according to the results of co-operative research between the bureau's Eastern Regional Research Laboratory, near Philadelphia, Pa., and the Delaware Agricultural Experiment Station. Chicks fed a standard mash to which had been added 8 per cent of dried broccoli-leaf meal not only grew well, but the meat had a highly pleasing flavor. Chicks fed on this mixture were compared to similar chicks fed on alfalfa-leaf meal. The chicks that received the broccoli meal made faster growth. Carrot, lima bean and turnip meals were about equal to alfalfa, and pea vine a little lower.

This development is the outgrowth of an attempt by agricultural scientists to find uses for at least a part of the large tonnage of waste leaves that occur in the production and processing of common vegetable crops. Research showed that the blade portions of the leaves, free of stems, are high in protein, containing from 30 to 36 per cent in some cases. This material is also high in carotene, or pro-vitamin A, and in riboflavin, both of which are needed in poultry feed. Research is now in the pilot-plant stage and detailed information in mimeograph form is available to those who wish to set up a plant to make meal by this new process.

A new peanut glue that has the sticky qualities of flypaper, when wet but that is dry to the touch before moistening is the outgrowth of investigations by agricultural chemists. The light color which does not materially affect the color of the surface to which it is applied makes this glue especially desirable for certain work such as binding books and making gift boxes. It can also be used in bonding plywood, and for that purpose is about as satisfactory as casein glue which is made from skim milk, but peanut glue can be made considerably cheaper than casein glue. This is a possible industrial outlet for a part of the peanut crop which was greatly expanded during the war for food purposes.

Dehydrated vegetables take about one-third the space required by similar products processed

in other forms. Bureau scientists who were working on this project in 1941 conducted much of the basic research which made a rapid expansion of the dehydration industry possible. It was expanded from approximately 20 establishments with a producing capacity of some 15,000,000 pounds a year in 1942 to several hundred establishments with an annual capacity of about 500,000,000 pounds in 1943. The figures were even higher for 1944. One-third of the bureau's Western Regional Research Laboratory, at Albany, Calif., was devoted to dehydration work. One of the latest developments in the dehydration field is the addition of a desiccant to packages of dehydrated vegetables. This absorbs the moisture in the can and makes the vegetables keep longer.

Bureau of Plant Industry, Soils, and Agricultural Engineering.—In his annual report for the fiscal year 1945, Robert M. Salter, chief of this bureau, cited accomplishments covering a wide field of activities. Much of the work of the bureau's scientists, often in association with state experiment stations and other investigators, dealt with means of reducing costs of crop production through better varieties, improved fertilizers, and new methods and machines more closely adapted to crops and conditions. These and various other developments provide the nation with greater assurance of sufficient food, feed, vegetable oils and fibers, and tend to improve crop- and soil-management systems so as to sustain profitable production more readily without undue loss of basic resources.

An outstanding development during the year was progress in uncovering a variety of agricultural uses for the chemical 2,4-D (2,4-Dichlorophenoxyacetic acid). It has been developed widely as a weed killer and is now commonly sold for this purpose, but the newer researches indicate it has value in shortening the ripening period of some fruits, such as bananas after harvesting, and in bringing about changes in the composition of various crops such as in their sugar and amino acid contents. Research on this and related chemicals is continuing.

The bureau also announced more than 2 dozen new varieties of crop plants, bringing to more than 100 the number brought out in the last four years. Although the gain to the country from these new varieties cannot be closely measured, the new wheats created in recent years, largely by state and federal plant breeders, are estimated to have been responsible for about 100,000,000 bushels of the 1944 crop of hard red spring wheat. The bureau made a similar estimate on rice, showing that 5 improved varieties of rice, grown on 48 per cent of the southern rice acreage in 1944, gave yields 13 per cent higher than the standard varieties and put an additional $10,500,000 in the pockets of the growers.

Speeding up increases in seed supplies has given farmers the advantage of research results quickly. On occasion it has been possible to compress this stage into an astonishingly short space of time; 25 pounds (less than a bushel) of seed of a new oat variety, Clinton, harvested at Ames, Ia., by state and federal agronomists in August 1943, and sown 3 months later on irrigated land at Mesa, Ariz., produced 65 bushels (more than 2,000 pounds) the following April. The 65 bushels were sown on irrigated land at Aberdeen, Idaho, May 20 and 1,200 bushels harvested in August, 1944. Selected farmers in Iowa, Illinois, and Indiana who planted the new variety in the spring of 1945 harvested 40,000 bushels or more that became available for commercial planting in 1946.

For the benefit of tobacco farmers in the Coastal Plain area of the Southeast, the bureau rushed through a publication showing a new practice for the control of both weeds and soil-borne diseases in tobacco plant beds. State and federal investigators had concluded in tests finished earlier in the season that applying a pound of urea and half a pound of calcium cyanamide per square yard of plant bed the previous fall makes possible a good stand of strong tobacco plants and greatly reduces the stand of weeds. As a result of early publication it was possible for tobacco farmers in Virginia, North Carolina, Georgia, and Florida to use the new method in the fall of 1945.

In order to cover a large variety of research results obtained by this bureau, and in many cases co-operating state experiment stations during the fiscal year 1945, items concerning them are presented concisely as follows.

Two new yellow corn hybrids, for Kansas, now becoming established and that may fit also into parts of Missouri and other states to the east; two new durum wheat varieties, Stewart and Carleton, as good as the old variety for macaroni and also highly resistant to rust; some additional new oat varieties, early, resistant to diseases, high yielding and with other good qualities; disease-resistant barleys of good yields and other special qualities for parts of the North Central States and one for irrigated land in the Intermountain region; a new sorghum (Midland) with stiff stalks that can be harvested with a combine, saving labor for the western two-thirds of Kansas; control of bindweed by growing crops less palatable to sheep than bindweed, such as Sudan grass and rye, so sheep will keep the weeds grazed close.

Abaca or Manila hemp production in Central America, started by the bureau in 1925, by 1945 had reached a monthly total of 2,000,000 pounds. One-variety cotton production has now been established in 2,194 communities of 581 of the 775 cotton-producing counties, giving the farmers $8 more an acre, or a total gain of $56,000,000 a year. Still other recent results are: new facts on what makes strength in cotton fibers of different lengths and fineness; improvement in castor bean plants through genetic studies, making them yield better; demonstration of better basis for selection and pricing of hops as a result of the discovery of the relation of resin content to seed content, low seed content meaning more alpha resin.

Over a period of nearly 40 years the investigators have developed a farming system for the western part of the Central Plains consisting basically of a flexible 4-year rotation as follows: (1) fallow; (2) winter wheat on fallow; (3) grain sorghums and beans in alternate strips on winter wheat stubble land; and (4) forage sorghums, grain sorghums, or possibly proso on the sorghum land and oats and barley on the bean land. Other studies have shown that crop residues left on the surface in the dry-land areas have no important effect on yield but are of value in erosion control. Still other developments are new facts on the effects of age on growth and survival of shelterbelt trees of many varieties.

Ways were found of reducing heavy spoilage of binned grain by preventing moisture from entering the joint between sidewalls and floors and through floors. Good practices were developed for handling and storing immature or soft corn.

The investigators discovered that in apple storages there is an advantage in reversing airflow every few hours to avoid overchilling and overheating near inlets and outlets.

Scientific studies also led to new facts on different types of sprayers and dusters and on airplane dusting in the control of borers in sweet corn. A field tung-nut huller promises a great saving in storage, bags, and transportation over the method of having the hulling done at the mill. A new sweetpotato vine remover facilitates harvesting and the use of the vines as feed. A continuous-type sugarcane loader saves labor, and a stubble shaver and crusher destroys the borer, a pest of the crop.

A new machine for flax scratching can extract almost twice as much of the fiber as obtained by present methods and the quality is better. Cotton gin chokages that have caused damage to lint in the dry Southwest have been shown to result from static electricity and can be controlled by introducing a fine mist of water and sulphonated oil into the gin.

New alfalfa hybrids giving a high yield of seed, and different procedures and practices, such as watering and varying closeness of plants have been shown to make wide differences in yields of this crop. Still other recent developments are: a new hard-seeded crimson clover that volunteers readily and does well over a wide area of the Southeast; reports on a gradual increase in soybean diseases; new vetches taking the place of common vetch as cover crops for the South and to make more certain good yields of seed and hay in the Pacific Northwest; a simple chemical dip treatment (sodium pentachlorphenate in water) to control surface molding of wooden containers, and discovery of a new pine tree canker in western North Carolina.

The bureau's work has led also to: two new varieties of peaches; improvements in the spraying of apples and pears to control preharvest drop, especially the use of 2,4-Dichlorophenoxyacetic acid, which has a longer effect than the material previously used; control of cranberry fruit rots with an organic fungicide that leaves no objectionable residue; new cultural practices that bring better pecan yields; better yields of tung oil through proper application of nitrogen fertilizer even where legume cover crops are used; use of the aerosol or "bomb" technique in applying colchicine to induce genetic changes in plants; announcement of a new heat-resistant leaf lettuce, Slobolt, seed of which has already been increased by commercial growers; and new mildew-resistant cantaloups for the Southwest where powdery mildew almost destroyed the cantaloup industry in California's Imperial Valley.

Further advances have been: the creation of a new green-type perennial onion, the "Beltsville," that does not ripen down; progress in tomato hybrid breeding that gives promise of garden and commercial varieties resistant to fungus diseases of the leaves that reduce yield and quality of fruit; sulphur dusting of field beans to control rust and greatly increase yields; better seed and close planting to increase peanut yields; use of the spectrograph in problems of crop production, especially plant nutrition; new potato varieties for the South as a result of a National Potato Breeding Program; benefits from irrigation of potatoes in the East; successful production of American Easter lily bulbs through control of virus disease that ended the industry in Bermuda and had begun to attack the fields in Japan; a mica product, sometimes used as poultry litter, found to give florists good results, instead of soil in growing seedlings as it helps germination and reduces losses from damping-off.

A new practice in refrigerating tomato cars to around 55° F. consists in blowing bunkers full of snow ice. A study of the maintenance of phosphorus in irrigated soils showed that a 2-year rotation with large applications of manure was effective in increasing the content of soluble phosphorus. Tests of sweet clover as green manure in crop rotations in an area of Washington have shown that it reduces the yield and quality of potatoes. In the same area, rotations with 3 years of alfalfa produced high yields of corn and potatoes and greatly reduced wireworm infestation.

Nematological studies showed that the potato rot nematode is a separate species, a fact that should be helpful in control work. A nematode from a head of rye that had been in an herbarium since 1906 was revived, showing a dormancy period of 39 years, 12 years longer than a previously reported record of a wheat nematode.

A placement program for the establishment of cinchona plantings in South and Central America was completed. Living plant materials received from foreign countries during the year included beans from Chile, Colombia, Mexico and Peru; corn from the Argentine; and oat species from Uruguay.

Studies of various plants as sources of rubber have been going on. Among them have been cryptostegia, kok-saghyz and guayule, and the well-known native Amazon Valley tree, hevea. Understanding of hevea culture is intended to help establish in tropical America a permanent, self-sustaining, rubber-producing industry on a small-farm basis. The work has been done under co-operative agreements with 12 countries. Progress has been made in solving hevea disease and propagation problems. Methods of propagating guayule, the wild rubber plant of the Southwest and Mexico, have been improved.

Fertilizer experiments carried on with North Carolina indicate that the corn yield in that state might well be doubled in ten years. In one outstanding case, land that grew 19 bushels an acre without added nitrogen grew 107 bushels when 120 pounds of nitrogen was used to the acre. Much soil depletion was shown to be occurring in the northern Great Plains from continuous cropping and only where manure was used was there no depletion. Research made it possible for the first time to manufacture deflourinated phosphate rock commercially, a product suitable for use as fertilizer and as a supplement in feeds for livestock. A study showed that, in the United States, expenditures for fertilizer ranged from $111,000,000 in 1911 to $450,000,000 in 1944. Soil survey field scientists spent much of their time on war crop problems, but much work, nevertheless, was done by men in co-operating state organizations in developing vitally needed soil maps, a total of about 1,085,000 acres being covered. Publication of such reports was greatly curtailed by the war.

New methods have been devised against canefield weeds, flaming and the use of 2,4-D being promising, as is also use of closely spaced soybeans and dense-shading types of cane. Sugar sorghums recently brought from Africa and India have broadened the prospects of breeding up better varieties of these plants. Improved disease-resistant varieties of sugar beets are now the mainstays in this branch of sugar production in

the United States. Discovery of a male-sterility factor in sugar beets opens up possibilities of using hybrid vigor in this crop comparable to its use in corn and onion production.

Research men succeeded in making an interspecies cross that promises to make the long-sought immunity of wild tobacco to "wildfire" diseases available in cultivated tobacco. They also showed that blue mold can be controlled by dusting the tobacco plant beds, a method that saves time over spraying.

Bureau of Animal Industry.—Established by act of Congress, May 29, 1884, the Bureau of Animal Industry is concerned primarily with the development of the livestock, meat, and poultry industries of the United States. The bureau's early duties and activities, as assigned by Congress, were the control and eradication of animal diseases and parasites, but later Congress added other responsibilities. In addition to protecting livestock health, the bureau now conducts investigations and experiments in the breeding, feeding, and management of domestic animals, including poultry. It also studies methods of improving the quality and usefulness of their products.

During the fiscal year ended June 30, 1945, the bureau, under the direction of its chief, A. W. Miller, continued to give principal attention to projects related to an abundant production of food in support of the war, then in progress. Bureau officials co-operated with other federal and state agencies in matters relating largely to the production and conservation of livestock and poultry products.

To these ends the bureau continued numerous projects in co-operation with official agencies, livestock producers, and industry with particular regard to measures for protecting the health of domestic animals and otherwise aiding their large-scale efficient production.

Veterinary Inspection and Research.—The federal-state campaign, begun in 1934, to suppress bovine brucellosis, or Bang's disease, made further progress during the year in response to requests by livestock owners for assistance. One phase of this work, known as the area plan, consists in testing all dairy and breeding cattle more than 6 months of age, removing the reactors, and cleaning and disinfecting the premises. As a result the Department of Agriculture had designated up to June 30, 1945 a total of 599 counties, located in 22 states, as practically free from bovine brucellosis. This number of counties represented a slight gain over the previous year when the corresponding number was 591 in the same number of states. Another phase of the work, consisting of vaccination, has been of great value in controlling the disease, especially in parts of the country where there is a great deal of brucellosis infection. Heretofore the Bureau of Animal Industry has advocated the protective vaccine for calves only. As a result, since the adoption, in 1941, of calfhood vaccination as a part of the official plan of eradicating brucellosis, approximately 1,260,000 calves have been vaccinated under official supervision, nearly one-half of them during the last year. Recent field trials have shown that, in some types of herds and under certain conditions, vaccination of adult cattle in an infected herd tends to prevent abortion and to curb otherwise the spread of the infection. Though adult vaccination is advisable and is consequently now permitted to meet such needs, it is not recommended in herds entirely free from brucellosis, in cows 5 months or more advanced in pregnancy, or when prohibited by state laws. At the end of June 1945, more than 17,500,000 cattle, located in about 2,300,000 herds, were under official supervision for the eradication of brucellosis.

The campaign begun in 1917 to eradicate bovine tuberculosis, through systematic tuberculin testing and the removal and slaughter of reacting animals, continued to progress. In recent years most of this work has consisted in retesting herds previously freed of the disease. Valuable aid in the project is provided by meat inspection services, both federal and state. Reports of veterinarians conducting post mortem examinations of cattle have helped in locating and removing tuberculous cattle from centers of infection that might otherwise have escaped detection.

The campaign against cattle-fever ticks was continued in co-operation with state and county officials of southern states and territorial officials of Puerto Rico. In the eradication of this pest more than 8,000,000 inspections or dippings of cattle, horses, and mules were made under official supervision. In Texas, along the international boundary in the lower Rio Grande Valley, some reinfestation occurred from stray or smuggled animals from Mexico, in spite of a federal quarantine on a narrow strip along the border and constant patrol of the area. All known infested and exposed areas, however, were soon brought under control.

In supervising the interstate transportation of livestock to prevent the spread of disease, bureau inspectors at 48 stockyards inspected more than 26,000,000 cattle, 27,000,000 sheep, and 28,000,000 swine. Of these animals about 170,000 cattle and sheep were dipped for scabies and more than 274,000 swine were immunized against hog cholera to comply with the regulations of the department and the various states to which they were destined for feeding and breeding purposes.

Veterinary inspectors at public stockyards continued to give particular attention to inspection of all ruminants and swine for foot-and-mouth disease, no case of which was found.

As another protective function, the bureau supervised the production of veterinary biological products at licensed establishments producing anti-hog-cholera serum and similar products for interstate shipment.

A field survey which the bureau conducted on the extent of the horse disease, encephalomyelitis or sleeping sickness, showed the importance of determining the type of virus that causes the infection in specific cases, so that a corresponding vaccine may be administered as a preventive. During the calendar year 1944 the disease occurred about 14 times as often in unvaccinated as in vaccinated animals. More than four-fifths of the 19,590 cases reported during 1944 occurred during the months of August, September, and October. This seasonal peak confirms previous experience.

Tests with penicillin, of which small quantities became available for research in bovine mastitis, indicated that this drug, when administered by udder infusion, is effective in the control of that disease. It is less irritating to the bovine udder than other chemical agents now in use and preliminary tests showed beneficial effects in a majority of cases caused by streptococci and staphylococci. Penicillin was not effective, however, against certain other organisms and resulting types of mastitis infection, nor can it be expected to be more than an aid to required sanitary procedures.

Another development in veterinary science resulting from department research is a practical means of controlling cattle liver flukes. These are small leaflike parasites that inhabit the gall ducts of the liver. When present in large numbers, as is often the case, they seriously affect the health of infested animals. Treatment is based on the discovery that the chemical, hexachlorethane, when combined with a claylike substance known as bentonite, can be suspended in water. The suspension is easily administered with a dose syringe and is highly effective in removing the parasites without injury to the cattle. The treatment is being widely used in several states where liver flukes are a serious drain on cattle production.

Animal Husbandry Research.—The dependence of the livestock industry on research to solve changing problems has become increasingly apparent. In the southern part of the Great Plains, which is an important cattle grazing area, are vast acreages of sagebrush land and much abandoned eroded cropland. Experiments by several department and state agencies have demonstrated that mowing the sagebrush improves yields of range grasses and other desirable forage. This practice almost doubled beef production in about a year. The studies showed, likewise, that overgrazing reduces the growth of grass long before reduced cattle gains become apparent. In the case of abandoned cropland, experiments have demonstrated that it can be made productive rather quickly for grazing beef cattle by seeding it to grass mixtures suitable for the region. Adoption of these improved methods of cattle management is helping to increase the quantity of beef produced on the Great Plains.

Observations of beef cattle in feed lots have shown that vitamin A deficiency is an important nutritional disease of fattening cattle. Results of experiments have confirmed this view. Common symptoms of the deficiency are: night blindness progressing to total blindness, a rough dry coat, lameness, rapid breathing especially in hot weather, and swelling of the legs, shoulders, and brisket. Affected cattle often lose weight and condition near the end of a long feeding period. Animals severely affected sometimes die or, if slaughtered, yield carcasses unsuitable for food. Prevention consists in providing a liberal quantity of green forage, well-cured hay, or silage in addition to the usual fattening ration. Such a ration commonly includes cereal grains, corn, grain byproducts, and protein concentrate. Experiments have shown that yellow corn, though often considered to be a source of vitamin A, cannot be depended upon to prevent the deficiency even though such corn is fed in abundance.

In another nutrition study, sweetpotato meal, a product resulting from the dehydration of sweetpotatoes, proved to be a good feed for fattening cattle in the Southeast. In this area the supply of other carbohydrate feeds suitable for beef cattle is limited, but sweetpotato yields of 200 bushels per acre can readily be produced. Experiments by department and state investigators showed that sweetpotato meal compares favorably with corn when each is combined with a sixth of its weight of cottonseed meal.

In swine production, the heavy losses of young pigs sustained during the suckling period has long been a problem confronting growers. Tests by the department have established the value of electric pig brooders for this purpose. Such a brooder can be built in the corner of a pen at moderate cost. During damp or cold weather, warmth is provided by a 150 to 200 watt electric light bulb, installed in a frame about a foot above the floor. Besides giving mild heat the light attracts the young pigs so that they remain away from the sow much of the time, thereby reducing the opportunity for her to lie on them or otherwise cause injury.

Sheep breeding studies confirmed results previously obtained on the heritability of various desirable characteristics. These include length of staple (unstretched wool fiber), freedom from excessive wool on face causing wool-blindness, and freedom of skinfolds on the necks of Rambouillet sheep. The results indicate that rapid progress can be made through suitable breeding and selection methods in developing sheep having more of the characteristics desired and fewer faults. A fairly rapid rate of improvement can be expected also when selection is directed toward the production of lambs that develop rapidly and reach good weights at weaning time.

Poultry Improvement.—Chickens that lay eggs of superior table quality are among the products of research by the department's poultry scientists. Some lines of chickens have been bred to produce eggs having a larger percentage of thick white than usual, so that the eggs poach and fry better. Chickens of other lines lay eggs with thicker, stronger, and less porous shells. Such eggs are less subject to breakage and keep better in storage than average eggs. Another line lays eggs almost entirely free from blood spots. The scientists have also bred some birds whose infertile eggs maintain good table quality for as long as 2 weeks at 100° F. Most eggs kept at that temperature are practically unfit for human consumption after about 1 week. These improvements have resulted from the application of principles of breeding and selection that any progressive poultryman can adopt.

Because of the probability that other countries may wish to obtain airplane shipments of hatching eggs from the United States, scientists of the department have studied the effect of reduced atmospheric pressure on hatchability. The tests were made in a laboratory under conditions likely to occur in air transport. Reduced atmospheric pressures corresponding to altitudes exceeding 14 miles had no effect on the subsequent hatchability of eggs incubated at moderate altitudes. Results of several shipments of chicken and turkey eggs later confirmed the experimental findings.

In 45 states, chicken breeders and hatcherymen continued to participate in the National Poultry Improvement Plan, an activity conducted co-operatively by department and state poultry officials. In 26 states, turkey breeders and hatcherymen participated in a similar plan, designed for the improvement of turkeys. Chicks and poults produced under the provisions of these two plans are identified by official terms that inform purchasers of the birds' breeding quality and the measures used to prevent pullorum disease in the breeding flocks. The plans involve official supervision of breeding flocks and hatcheries. Productive strains are developed by trap-nesting, pedigree breeding, and family selection. Then these superior bloodlines are propagated further with the aid of hatcheries.

Bureau of Dairy Industry.—This bureau was established by act of Congress in 1924 to promote the economic welfare of the dairy industry by the investigation of dairy problems and the dissemination of scientific and practical information.

In reporting the bureau's activities during the fiscal year ended June 30, 1945, O. E. Reed, chief of the bureau since 1928, said that wartime advances in nutritional knowledge have aroused new and widespread interest in milk and milk products and that this interest will be both an opportunity and a challenge to the dairy industry in the postwar years.

The opportunity lies in the fact that more people will want more milk and milk products than ever before; the challenge to the dairy industry will be to improve the quality of these products and the efficiency with which they are produced, processed, and distributed, in order to supply the most dairy food to the most people at the lowest possible cost.

Fundamental research has played an important role in dairy progress to date and it will continue to be important for future progress. The average dairy farmer will need better cows in order to further reduce his cost of producing milk. Breeding experiments covering many years and involving many dairy animals have already shown that the milk-producing efficiency of the average farm herd could be materially improved through the use of the right kind of progeny-tested herd sires, or the sons of such proved sires.

The experimental breeding herd of Holsteins at the Agricultural Research Center, Beltsville, Md., where the bureau has now used a succession of 5 proved sires, continues to provide an impressive demonstration of the value of this system of breeding. For example, the average butterfat production of the daughters of the first proved sire was 663 pounds per cow per year; the average for the daughters of the second proved sire, whose dams were the daughters of the first proved sire, was 705 pounds; the average for the daughters of the third proved sire, whose dams were daughters of the second sire, was 768 pounds; the average for the daughters of the fourth proved sire was 837 pounds, and the average for the daughters of the fifth sire was 848 pounds.

The proved sires used in this herd were all selected on the basis of their demonstrated ability to transmit an inheritance for high production and without regard to their relationship to the cows with which they were to be mated. The production records of their daughters thus indicate that, contrary to a theory held by some breeders, it is not necessary to use sires from the same family or strain as their mates in order to obtain good results.

As a part of the proved-sire breeding work at its various field stations, the bureau loans its young unproved bulls to farmer co-operators who agree to keep records on the daughters of the bulls and on the dams of the daughters. The young bulls, which are sons of the proved sires in the experimental herds, are thus "proved" in these outside herds by comparing the production records of the daughters and the dams. This proof on the experimentally bred bulls affords a means of measuring the progress being made toward "fixing" an inheritance for high levels of production in the experimental herds.

Evidence that such progress is being made is seen in the fact that 17 young unproved bulls that were bred at the Jeanerette, La., station and used in nearby farm herds have sired 297 daughters whose average butterfat production was 32 pounds better than the average of the dams. Thirteen, or 77 per cent, of these bulls each sired daughters that were better on the average than the cows to which they were mated. Bred at the Woodward, Okla., station, 25 young unproved Holstein bulls increased the butterfat production in farmer co-operators' herds by an average of 45 pounds per cow. Twenty-four, or 96 per cent, of these bulls each sired daughters that were better on the average than the cows to which they were mated.

Some of the outstanding bulls thus discovered are loaned for service in artificial-breeding organizations and in co-operative bull associations, where their superior inheritance can be widely disseminated. One proved Holstein bull was loaned to a large co-operative organization in 1941 and in the following 3-year period he "artificially sired" some 3,000 calves. Of the 123 Beltsville-bred bulls now loaned out for service, 26 are in artificial-breeding organizations, 38 are in co-operative bull associations, 45 are in privately owned herds, and 14 are in state institution herds.

In the postwar years, the average dairy farmer will also need to feed his herd better, not only to produce more milk per unit of feed in order to reduce costs, but also to maintain the health and reproductivity of his animals and to produce more nutritious milk. In fundamental studies of the physiological functions of milk production the bureau's scientists are seeking to discover the causes and possible remedies for various forms of sterility and irregular breeding. Painstaking research to determine the relationship of the cow's diet to the secretion of hormones that control her various functions is gradually building up a better understanding of these relationships.

Already considerable useful information is at hand concerning the important role of roughages in the cow's diet and the need for better methods of harvesting and storing pasture and hay crops to preserve their nutritional values. During the year, comparisons were made of the feeding value of alfalfa hay preserved as silage and as field-cured hay. The silage contained 21 per cent protein and the hay about 15 per unit of dry matter. Cows on the silage produced 7.3 per cent more milk than those on the field-cured hay. At the beginning of the feeding trials the silage contained 9 times as much carotene (the substance from which vitamin A is made in the animal body) as the hay, and as the trial proceeded the hay lost more carotene until at the end the silage contained nearly 14 times as much per unit of dry matter as the hay. Preserving alfalfa as silage avoids the losses that occur in field-cured hay exposed to various weather and handling conditions during curing and storage. The higher carotene content of the silage resulted in a higher vitamin A potency in the milk and in the butter made from the milk.

That there is need for more general improvement in winter feeding conditions on the average dairy farm is indicated by the results of a survey recently completed by the bureau, in co-operation with some 20 state experiment stations. These results show the average vitamin A potency of the creamery butter produced in different seasons and regions in the United States. As was expected, the survey showed that the butter produced under summer feeding conditions, when most cows were on pasture, was higher in vitamin A potency than the butter produced in winter, when the cows were on dry feed. The summer butter averaged nearly 18,000 International Units of vitamin A per pound and the winter butter about 11,000. Since approximately 64 per cent of all the butter produced is summer

butter and 36 per cent is winter butter, the average potency of the total yearly output is approximately 15,000 units per pound.

Butter containing as much as 23,000 international units is frequently produced in summer, under very good pasture conditions, but there are large fluctuations in the vitamin A potency of the butter produced from month to month and from state to state. The difference is largely the result of differences in the carotene content of the roughage feeds available to the cows in different seasons and regions. By proper feeding it is possible to produce butter in winter with the same high vitamin A potency as the summer butter. Until such time as the market demand for high vitamin A milk, or butter, brings the farmer an increased price for high vitamin A potency in these products, however, he must have other profitable incentives if he is to increase the vitamin A potency of his winter product. Research workers are now turning their attention to the development of methods which will be sufficiently practical and economical to enable more farmers to feed as well in winter as they do in summer.

In the dairy products field, one of the important postwar problems will be how to use greater amounts of skim milk and whey for human food. Increasing the food use of the nonfat solids contained in these byproducts would improve the average diet considerably, and at the same time it would be of economic importance to the dairy industry. Research is needed on various phases of the problem, but the bureau's work has already shown that considerable quantities of dried skim milk can be used to advantage in bakery products of various kinds, and in soups, ice cream, and confectionery products. Milk sugar, formerly obtained almost entirely from casein whey, is now being made from cheese whey by processes based on the bureau's research. Milk sugar has numerous uses, the newest being its use in connection with the production of penicillin. Research now under way indicates that cheese whey may eventually be used in making secondary forms of cheese, particularly cheese of the blue-mold type, and some forms of cheese spreads.

During the past year the bureau obtained sufficient new information to show conclusively that it is possible to speed up the ripening of Cheddar cheese by curing it at 60° F. instead of at 50°, provided the milk is of good quality and is pasteurized. Experimental cheeses held at 60° were as fully ripened in from 3 to 4 months as those held at 50° for 6 months, and generally the flavor of the former was much better than the latter.

In view of the fact that laws have been passed recently in several states requiring that all cheese for the retail trade be made from pasteurized milk, or that it be cured for a definite period of time prior to its sale, in order to safeguard consumers from harmful bacteria that might be present in the raw milk, the bureau devised a practical method for testing the cheese to determine whether or not it was made from milk that was properly pasteurized. A decrease of 2 degrees in the pasteurizing temperature, or the addition of as little as 0.1 per cent of raw milk to the pasteurized milk, can be detected by the test.

The successful use of dried ice-cream mixes on board ship and for shipment to military outposts indicates new possibilities for the ice-cream industry, especially the production of dried mixes for sale through stores in small packages for home use. Further research is needed on some phases of this problem, particularly on the composition of desirable mixes and suitable packages for maintaining keeping quality. In recent studies the bureau found that it would not only be possible but also more economical to add most of the required sugar after the mix had been dried rather than before. As much as 90 per cent of the sugar can be added after the mix is dried, thus avoiding the necessity of dissolving it in water in order to add it to the liquid mix and removing the water later during the drying process.

Research on the manufacture of ordinary ice-cream showed that up to 20 per cent of the sugar ordinarily used can be omitted by reducing the water content of the mix and using milk solids in place of the sugar. Recent reports indicate there is much interest in the process at this time and that the information is helpful in maintaining ice-cream output at a high level in spite of the severe limitations on sugar.

Bureau of Human Nutrition and Home Economics.—This bureau, directed by Hazel K. Stiebeling, included in the year's program research aimed toward helping families to adjust to wartime situations and also research looking to reconversion and the postwar period.

Continuing the collection and interpretation of facts needed for improving living levels, the bureau, in co-operation with the University of Tennessee, completed field work in a study of wartime economic adjustments of rural white families in Tennessee. First tabulations of results showed that in 1944 nearly a fourth of the farm families surveyed had cash incomes under $500. About 55 per cent received under $1,000. Only 6 per cent reported $3,000 or more. The median was $900, in contrast to the 1941 figures for United States farm families, showing a $761 median.

The bureau analyzed data on hand and made new studies to assist the department's analysis of various proposals to assure more effective postwar distribution of food, so as to improve nutrition, promote full use of agricultural resources, and provide adequate outlets for food supplies. A special analysis of data collected in 1941 showed that only by allotting more than 40 per cent of income to food could about one-fifth of the urban population be expected to get an adequate diet. Had the group spent this much, it is estimated that their market demand for tomatoes and citrus fruit would have been greater by 60 per cent, for milk and its products by 30 per cent, and for meat, poultry, and fish by 30 per cent.

Family food plans at two cost levels were priced quarterly, using average retail city prices reported by the U. S. Bureau of Labor Statistics. Little change in cost occurred during the year. The average city price in March, 1945, of a low-cost nutritionally satisfactory diet was estimated at $7 to $8 a week for a family of two, $12 to $13 for four, and $19 to $22 for seven. At a moderate-cost level, corresponding figures were $10 to $12, $16 to $18, and $26 to $29. To help young married couples get both nutritional value and acceptable meals for their food money, a popular folder called "Food for Two" was issued, giving moderate and low-cost food plans, with a suggested market list and menus for a week.

Supplementing earlier work on soybeans, peanuts, and cottonseed, the protein values of wheat and corn germs were studied. Wheat germ proved first and corn germ second among these

plant foods as a source of nutritionally efficient protein. These cereal products were inferior in protein quality to egg or to milk when compared at a 15-per cent or higher protein level in an otherwise adequate diet. However, judging by potential annual production, they could become a low-cost source of high-quality food protein if marketed in suitable form.

Continuing the search for rapid chemical methods of determining amino acids in proteins, a satisfactory colorimetric procedure was developed for menthionine, one of the amino acids essential for growth and maintaining good nutrition. By this new method, menthionine determinations were made on selected plant foods important as possible supplements to protein foods from animal sources. Brazil nuts were discovered to contained more menthionine than is recorded for any other food.

As aids to calculating the nutritive value of diets and to planning food production and distribution to meet human needs, tables were completed giving the composition of 275 common foods in terms of protein, fat, carbohydrate, iron, phosphorus, calcium, and five vitamins. The figures included many new data obtained from laboratories throughout the country by co-operation with the Committee on Food Composition of the Food and Nutrition Board of the National Research Council.

In response to a request from the Quartermaster General's Office, a summary was made of the nutritive values of vegetables cooked in large quantities. **The wide range** found for both actual vitamin content and percentage of vitamin retained in army and other institutional cooking points to the need for additional research on methods of reducing losses. This summary was published.

Research on factors affecting the utilization of carotene by the body showed that the carotene in cooked kale is utilized better than that in cooked carrots. Even at this, the vitamin A value of cooked kale appeared to be only about two-thirds as great as would be expected from a chemical determination of its carotene content. Feeding experiments with an extract of the carotinoid pigments of kale indicated that the difference between the chemical assay and biological assay is due to incomplete digestion of the vegetable. Similar experimentation will be undertaken with other carotene-rich fruits and vegetables. Research to determine the role of vitamin E in carotene utilization is continuing.

An important by-product of this research on carotene utilization was discovery of the inadequacy of the U.S.P. reference cod-liver oil as a standard in vitamin A bio-assays. A report on this work stimulated investigation in other laboratories, and at the recommendation of the U.S. Pharmacopoeia Committee for Vitamin Bio-assays, new substances are being sought to be used as a vitamin A standard in place of the U.S.P. reference cod-liver oil.

In co-operation with the Bureau of Animal Industry and the War Food Administration, studies on dried eggs continued, especially with a view to postwar use. Treatment with sucrose or lactose before dehydration proved effective in lengthening the period during which spray-dried eggs held at high temperature would keep in good condition for cookery. Findings suggest long storage possibilities for lactose-treated eggs held at more favorable lower temperatures. To aid in a proposed consumer acceptance test of dried eggs in the retail market, an illustrated booklet was prepared giving directions for reconstituting dried eggs and including about 45 recipes.

Studies of home freezing of fruits and vegetables were directed toward finding the best ways of pretreating and packaging foods to retain color, flavor, texture, and nutritive value. Considerable work was done on 10 vegetables and fruits and preliminary work on 5 others. Results attained with peaches show the value of controlled experiments: Packing in 40 per cent sugar sirup was better than packing in dry sugar for retaining natural flavor and vitamin C. To prevent discoloration, 5 anti-darkening agents were tried, and a citric acid dip or addition of ascorbic acid to the pack was recommended for home freezing.

As another aid to the family desiring frozen fruit products, the formula for making Velva Fruit commercially, developed by the department's Western Regional Research Laboratory, was adapted to home use and published in an illustrated leaflet.

To help meet the demand of both manufacturers and consumers for information on design and construction of home freezers, the performance of six freezers was studied. This work showed a need for better insulated tops and lids and better insulation between compressor unit and freezing compartment. It also afforded an illustration of the necessity for developing performance standards for temperature-holding capacity during periods of non-operation. Research on home freezers is continuing.

As part of an investigation looking toward development of textiles for specific uses, various physical properties of cotton fabrics knitted from natural and mercerized carded and combed yarns were compared. Knitted fabrics made from combed yarns proved stronger than those from comparable carded yarns. However, though mercerized yarns were at least as strong as corresponding natural yarns, knitted fabrics made from mercerized were weaker and generally less resistant to abrasion than those made from natural. Fabrics knit from mercerized yarns were less elastic.

In research on the merits of various kinds of clothing construction, a machine was devised for comparing resistance to abrasion of different types of buttonholes. Progress was also made on a method of comparing the durability of different types of seams. These are steps toward formulation of standards of workmanship and construction details that will aid the consumer in buying clothing.

To aid in nation-wide programs dealing with home food preservation, nutrition, use of abundant foods and stretching of those in short supply, clothing conservation, and other home-front problems, results of the bureau's research were called to the attention of the public through popular bulletins, press and radio releases, and picture material for print and screen.

Bureau of Entomology and Plant Quarantine.— Research conducted by the Bureau of Entomology and Plant Quarantine, under the direction of P. N. Annand, chief, has produced results on new developments which promise far-reaching effects upon the general control of insect pests in the future and which will also affect large-scale programs to combat outbreaks of injurious insects. Of special interest is the extension of the usefulness of the aerosol method of dispersing insecticides, both the liquefied-gas aerosol and those in the form of smokes. The practical use

of airplanes for the application of sprays has been made possible by utilizing various types of distributors whereby a concentrated spray is broken into very fine droplets. As little as 1 gallon will give good coverage over an area as large as an acre on certain types of foliage. This opens up new possibilities for the application of liquid insecticide materials from the air. Similar improvements have been made in equipment for applications from the ground. Methods and formulations for use of the important new insecticide material DDT for the control of disease-carrying insects have been developed, recommended to the military forces, and used effectively by them on a large scale. Extensive research to develop its agricultural uses indicates that although DDT is not effective against all insects it will be useful against many important ones which are injurious to livestock and crops. Much still remains to be learned concerning the best formulations and dosages for use against specific pests and on given crops. Certain of its limitations must be worked out before DDT can be used with safety for some purposes.

Investigations of fruit insects during 1944 showed that when used experimentally, DDT gave outstanding control of the codling moth in New York, Maryland, West Virginia, Indiana, and Washington. From ½ to 1 pound of powdered technical DDT appeared superior to 3 pounds of lead arsenate or cryolite. At Vincennes, Ind., combination sprays containing only 4 ounces of DDT to 100 gallons of lead arsenate or nicotine bentonite in half the usual concentration reduced the number of wormy apples to less than half of that resulting from use of the usual concentration of these materials alone. Although residues of DDT on harvested fruit have been found difficult to remove they do not appear to present a serious problem, because the dosages necessary to give effective control will probably not leave residues on harvested fruit heavy enough to be considered dangerous to human health.

Injury to peaches by the oriental fruit moth was reduced considerably in field plots sprayed with DDT at the rate of 1 pound per 100 gallons. Two applications, one each just before the appearance of both second- and third-brood larvae, were more effective than one application made just before the appearance of the second brood. DDT sprays reduced the abundance of parasites but did not eliminate them entirely. The new method of producing the important oriental fruit moth parasite, *Macrocentrus ancylivorus* Roh., from the potato tuber worm was further developed for use under eastern conditions. Continuation of the co-operative federal-state survey for the oriental fruit moth in several western states disclosed presence of the moth for the first time in five counties in Colorado, and in one county each in Utah, Idaho, and Arkansas.

In small-plot fumigation tests at Whittier, Calif., against the California red scale on citrus, kills were obtained under plastic-treated gastight tents with one-third to two-thirds the amount of hydrocyanic acid gas that was required to effect approximately the same kills under canvas tents. Somewhat better kills of this insect were obtained when the hydrocyanic acid was introduced with a blower applicator instead of with the vaporizer now in common use.

One to three applications of DDT (micronized with an equal quantity of pyrophyllite and with glue as a wetting agent) at the rate of 1 pound to 100 gallons of spray gave almost complete control of Japanese beetles on peach, early apple, grape, blueberry, and a miscellaneous group of ornamental and shade trees and shrubs. In soil tests 25 pounds of DDT per acre appeared to be more effective against third-instar larvae in various types of soils than 1,000 pounds of lead arsenate. At this dosage the material was found to be as effective after 75 weeks in the soil as when first applied.

Intensive survey and inspection during 1944 and early in 1945 revealed that there has been practically no extension of the area in California infected by the Hall scale. As a result of spray applications the scale population has declined. A fumigation program is now being started and the prospect of ultimate eradication of the infestation appears favorable.

The area in the Pacific Northwest known to be infested with pear psylla remained essentially the same as in previous years, except for some northward extension in British Columbia.

In investigations of forest insects the spruce budworm was found in June 1945 to be generally distributed throughout the Adirondack area in New York and the spruce-fir area in Vermont. Most of the infestation, by previous standards, was light, although defoliation was noticeable in a few places.

The outbreak of the Engelmann spruce beetle in Colorado continued unabated, killing over 1 billion board feet of Engelmann spruce in 1944, and bringing the total loss of timber to approximately 2 billion board feet during the last 3 years. Extensive surveys showed the infestation to be increasing in area and severity. The discovery that the Engelmann spruce beetle hibernates beneath the bark at the base of the trees during the second winter, a habit unknown to closely related beetles, has an important bearing on control methods.

In 1945 the program of experiments in the control of forest insect pests (such as gypsy moth, spruce budworm, pine tip moth, pine spittle bug, hemlock looper) with concentrated DDT sprays distributed from an airplane has been greatly expanded and improved spray formulas have been tested. Considerable progress in improving and simplifying distributing apparatus has been made through co-operation with the Bureau of Plant Industry, Soils, and Agricultural Engineering of the U. S. Department of Agriculture. Special emphasis has been given to airplane applications of DDT in Quebec, Ontario, New York, and Colorado to determine whether the spruce budworm can be economically controlled by this method. Preliminary results of these tests are very encouraging.

In tests during 1945 the gypsy moth was controlled with ¼ pound of DDT in 1 gallon of solvent per acre. This season's work has demonstrated conclusively that DDT is the most effective and economical insecticide discovered for control of the gypsy moth, and its distribution by aircraft and improved spray equipment offers for the first time a practical means for controlling woodland infestations of this insect. DDT has also been found to be very effective against the group of elm insects suspected of transmitting the elm virus disease organism.

Because the general use of DDT over large forested areas cannot be recommended until the possible detrimental effects to beneficial insects, fish, and wildlife have been determined, large wooded areas were treated in 1945 for a study of this problem. The results of these investigations have not yet been summarized.

Tests with various types of airplanes have demonstrated that the helicopter may prove very useful in treating woodland areas too large for economical treatment by ground equipment and too small for economical fixed-wing plane applications.

Investigations in the control of insect pests of cereal and forage crops included tests with DDT against the more important insect pests of these crops. Good control of the European corn borer was provided by various spray and dust formulations; dust mixtures were found very effective as barriers against chinch bugs; injections of DDT in mineral oil into silk channels of the ears gave almost perfect control of the corn earworm (it was the only insecticide that protected seed corn until harvest). The hazard of toxic residues of DDT in sweet corn ears has not yet been definitely determined.

DDT dust was more effective against the vetch bruchid than rotenone dust or a liquid bait spray composed of calcium arsenate, sugar, and water and gave excellent control of heavy infestations in Oregon. It also gave outstanding control of *Lygus* bugs in seed alfalfa in Utah.

A 6-per cent solution of DDT in refined kerosene sprayed on the walls and woodwork of a warehouse and farm-type wooden grain bins killed large numbers of grain-infesting insects in them.

Wrappings coated or impregnated with DDT, acrylamide, or a trichlorobutyramide were highly effective in preventing insect entrance into packages of cereals in experimental tests.

Cryolite was found effective for controlling a webworm in lespedeza. It also continued to provide better control of the sugarcane borer than other materials tested, including DDT.

Potassium fluosilicate appeared to be about as toxic as cryolite to adult white-fringed beetles.

Tests in a commercial flour mill showed that fumigation of machinery units every 3 weeks held the insect infestation at a low level to insure the production of insect-free flour. Carbon tetrachloride and various mixtures of carbon tetrachloride with ethylene dibromide or trichloroethylene gave promising results as grain fumigants.

During 1944 the European corn borer was found for the first time in Kansas, Nebraska, and Tennessee, and in a considerable number of counties outside the territory previously known to be infested in 10 other states. Borer infestations were generally lower in 1944 than in 1943 in the eastern part of the infested area, while farther west in the Corn Belt the borer was much more abundant in 1944.

A survey in the fall of 1944 revealed greater numbers of chinch bugs in hibernation, especially in the Corn Belt states, than had been present in any year since 1934. Moderate to very severe infestations were found in some sections, but the serious damage in prospect for 1945 was largely prevented by continuous cool wet weather during the spring and early summer.

Grasshopper infestation remained generally at a low level in 1944; however, there were several important shifts in economic populations. Substantial increases occurred in Montana, Wisconsin, and Wyoming, and slight increases in Arizona, Colorado, Oklahoma, Texas, Utah, and Washington. There were significant decreases in Kansas, North Dakota, and South Dakota.

Special emergency surveys of insects that attack vegetables and their control requirements have been continued, in co-operation with state workers, industry, and other agencies.

DDT in dust and spray forms and as an aerosol has proved to be very toxic to a number of common insect pests affecting vegetables; however, it has shown low toxicity against some others, notably the Mexican bean beetle, the tobacco hornworm, the turnip aphid, and a few others. The tolerance of vegetable plants to this insecticide has been high.

Dust mixtures containing 1 or 2.5 per cent of DDT were superior to all other insecticides tested during the spring of 1945 to protect cabbage in South Carolina from caterpillar damage. If current research reveals that the use of DDT on cabbage does not incur a harmful residue hazard or result in plant injury under the widely divergent conditions where cabbage is grown, it appears that DDT will prove to be a very effective remedy for cabbage caterpillars. Until more definite knowledge on the residue situation is obtained, its use on cabbage and related crops will be subject to the same limitations as that of arsenic and fluorine compounds.

Large-scale tests in commercial sugar beet fields demonstrated that one application, by airplane or with conventional ground equipment, of a dust containing 5 per cent of DDT at the rate of 30 to 40 pounds per acre has exerted a control of *Lygus* plant bugs surpassing that of two applications of the pyrethrum-sulphur or sulphur-dust mixture. Studies indicated that the use of DDT did not affect adversely the yield of sugar beet seed or its viability.

Early in 1945 the DDT aerosol with methyl chloride as the propellent agent was used on large field plots of peas for pea aphid control, and encouraging results were obtained. In the greenhouse, DDT in aerosol form was found to be very effective against several species of insects affecting vegetables grown under glass. Under greenhouse conditions the aerosols were applied with special dispensers.

Tests and observations on the effect of applications of insecticides by airplane, in co-operation with other agencies, have shown that rotenone dust applied to beans by airplane in North Carolina was not so effective against the Mexican bean beetle as when applied by ground machine. In Washington, cryolite dust applied with ground equipment to potato fields gave better results against potato flea beetles than when applied by airplane. In Washington and Oregon good results were obtained from aerial applications of dust mixtures containing DDT or rotenone for control of the pea weevil and the pea aphid. In these tests the airplanes were as effective as ground equipment under comparable conditions when the same insecticide was used. Satisfactory results were recorded in using airplanes to apply dusts containing DDT for the control of *Lygus* plant bugs and the beet leafhopper on sugar beets grown for seed in Arizona. Hornworms and flea beetles on tobacco were controlled successfully in North Carolina by airplane applications of cryolite dust mixtures. The results obtained thus far indicate that the use of aircraft for applying insecticides to some vegetable and tobacco crops has a promising future.

In experiments against insect pests of cotton it has been found that DDT was not effective against the boll weevil or the cotton leafworm, and caused an increase of the cotton aphid and the common red spider. It was effective against the bollworm, the cotton flea hopper, and several

other mirids, stinkbugs, the onion thrips and tobacco thrips, and the beet armyworm on cotton.

In laboratory tests 2.5- and 5-per cent DDT dusts caused low mortality of the boll weevil, but 10-per cent dust approached calcium arsenate in effectiveness. In field plots several applications of 5-per cent DDT dust failed to control the boll weevils and 2.5 per cent added to calcium arsenate did not increase the mortality or the yield of cotton as much as did the calcium arsenate treatment.

Preliminary experiments late in the season of 1944 indicated that DDT was the most promising material that had been used against the pink bollworm. Dust applications of approximately 15 pounds per acre of DDT in pyrophyllite, beginning when the cotton bolls were large enough for the pink bollworm to infest them and repeated at 5-day intervals, caused from 53 to 94 per cent reduction in larval populations.

Losses from boll weevils and other cotton insects in 1944 were the lowest in recent years. Although early season abundance of these insects, combined with a late planting season and favorable weather for insect development during the early summer, indicated severe damage to cotton, conditions were changed by hot, dry weather during the critical period of insect development. The damage caused by the boll weevil in 1944 was the least for any year since 1911. The unfavorable conditions for weevils and the favorable conditions for cotton resulted in the highest yields per acre ever recorded in the United States.

Further evidence of the value of feeding a pollen-soybean flour supplement to honeybees has been obtained. Feeding pollen and soybean flour to unprotected colonies in winter resulted in better colony development early in the spring than did the generally accepted method of heavily packing colonies for winter without supplemental pollen feeding. In limited tests, bees fed clover pollen supplemented with soybean flour reared more brood than those fed unmixed rye grass, star-thistle, partridge-pea, and clover pollen alone, the figures being 32,400 bees (over 6 pounds) per pound of supplement against 2,350 bees (about ½ pound) per pound of unmixed rye-grass pollen.

In investigations of insects affecting man and animals, the effectiveness of DDT has been found to be outstanding in its toxicity to mosquitoes. An important accomplishment in this field is proof of its residual value in controlling malaria. For the first time a material has been shown to be effective in reducing mosquitoes and flies by simply spraying it on the walls of dwellings or barns. Research on DDT has also given mosquito-control workers for the first time a material that can be applied from various kinds of aircraft and with one operation will destroy the larvae in the water and the adult mosquitoes on the wing. Liquid larvicides containing DDT were found more effective in the destruction of mosquito larvae than were dusts containing the same toxic agent.

In tests for the control of the stablefly (dog fly) in marine grass deposits along the coast of western Florida it was found that 0.5 per cent of DDT in bay-water emulsion applied at the rate of about 2 gallons per 100 square feet of grass surface gave effective control of the emerging flies.

Tests to determine the minimum concentrations of DDT required for the control of lice on cattle disclosed that all the motile forms of the short-nosed louse and the red louse were killed by a concentration of DDT as low as 0.08 per cent.

Field tests showed that one dipping of goats in a solution made of 1 part of DDT in 5 parts of soluble pine oil in 100 gallons of water killed the motile stages of all three common species of goat lice.

Preliminary tests with sprays containing 1 per cent of DDT for the control of clothes moths and carpet beetles in large storages of raw wool infested with these insects gave promising results.

It was found that a combination of dimethyl phthalate, Indalone, and 2-ethylhexanediol was effective for use as a repellent against malaria mosquitoes found in the United States and was more generally effective on every individual against various mosquitoes and biting flies than was any of these compounds alone. This development enabled the armed forces to issue a single repellent for the protection of personnel for several hours.

Two other important developments were the repellents dimethyl phthalate, emulsified and applied to the outer garments to give protection against chiggers, and benzyl benzoate for impregnation of clothing to furnish protection against the Pacific mite which transmits scrub typhus.

Some progress was made in developing two new smears that contain chlorophenoxathiin, for treatment of screwworm-infested animals. The new smears showed a distinct advantage over those containing diphenylamine in that the materials did not become hard and crusty on the wound after the benzene had evaporated.

Identifications by authoritative specialists were made for 59,492 insect samples contained in 30,184 lots received from sources requiring identification for the institution of proper control or quarantine action or in connection with the conduct of experimental work. In addition, identifications of approximately 6,000 samples of insects and mites involved in human health problems or recovered on aircraft were made for the army and navy and direct assistance or instruction in insect classification was given many officers of both branches of the armed service.

The importation of insect parasites and predators has been continued. Special emphasis was placed on the importation of parasites of the vegetable weevil and the cotton boll weevil from South America. A new co-operative project with the California Agricultural Experiment Station for the biological control of the Klamath weed was initiated in the fall of 1944. Large-scale shipments of two leaf-feeding beetles and a root borer that attack this weed were received from Australia through the courtesy of the Council for Industrial and Scientific Research. These are being tested on several economic crops and field releases of one species, *Chrysolina hyperici* Foerst, have already been made in northern California.

Investigations on the chemistry of DDT disclosed that none of the other compounds present were equal to *p,p'*-DDT (1-trichloro-2,2-bis-(*p*-chlorophenyl)ethane) in insecticidal effect. Solutions, emulsions, powders, and aerosols containing DDT were formulated for various insecticidal purposes. Specifications were worked out for commercial grades of DDT and for certain DDT preparations. Experiments on methods of removing DDT spray residues from apples were carried on in co-operation with the Bureau of Plant Industry, Soils, and Agricultural Engineering.

The search has continued for new insecticides and fumigants to replace those that were scarce

or not available because of war conditions. Two new nicotine compounds were found to be more highly toxic than free nicotine. A new insecticidal material the active principle of which is the gamma isomer of benzene hexachloride was tested and found to be more toxic than DDT to some insects and less toxic to others.

Further tests were made in the adaptation of heat-generated, or "smoke," aerosols for the control of agricultural pests. The aerosol from a generator developed for the military services gave promising results when applied from airplanes against larvae of the gypsy moth infesting forest areas in New England.

Tests were made of the latest models of power blowers in dispersing insecticides in finely atomized form. It has been found that the mist blower is especially well adapted for treatment of shade and roadside trees and orchards. Much less spray material is used by this method than by the conventional application of dilute sprays with power sprayers.

There was a 59-per cent expansion in the 1944 Japanese beetle trap-scouting program. A considerably wider area was surveyed, particularly in Florida, North Carolina, and New York. Beetles were captured for the first time in 36 new localities. Military and commercial airports west of the Mississippi River were also included in this program.

A large-scale field experiment to control the Japanese beetle with DDT was undertaken at an established, isolated infestation at Blowing Rock, N. C. A dust consisting of 10 per cent of micronized DDT in pyrophyllite was applied as a dry-surface treatment to the soil on approximately 225 acres, and 10,000 gallons of spray mixture containing 1 pound of DDT per 100 gallons of water was applied to tree and shrub foliage in the same area.

In connection with control activities against the gypsy moth, emphasis was placed on use of the sex attractant to trap male moths and on manual types of surveys to delimit the area of infestation and to locate all infestations of sufficient severity to represent an appreciable hazard of natural spread. Control measures included co-operation in extension experiments with DDT in several of the areas most heavily infested with gypsy moth, particularly in Pennsylvania and in the New York-New England section.

During 1944 there was some extension of the area infested by the white-fringed beetle. This pest is now known to occur on a total of 140,000 acres in Alabama, Florida, Louisiana, Mississippi, and North Carolina. Insecticides, in the form of dusts and dilute and concentrated sprays, were applied to an aggregate of 68,702 acres in order to reduce populations at places from which there was danger of spread and on crops the marketing of which presented a hazard.

During the calendar year 1944 sweetpotato weevil eradication activities conducted by the bureau, in co-operation with growers and state agencies in 29 counties in Alabama, Florida, Georgia, Louisiana, Mississippi, and Texas, resulted in the release from planting restrictions of 2,106 of the 2,431 farms known to be infested at the beginning of the year. Farms are released when no weevils have been found on them during a period of at least 12 months.

Additional infestations of the pink bollworm discovered in southern and northwestern Texas in 1944, together with new discoveries during the crop season of 1943, increased the threat of spread of this insect throughout the entire Cotton Belt. Infestations were found in 16 additional Texas counties in 1944, and 2 counties previously released from quarantine were found to be reinfested. Light infestations were found in nearly all counties of the quarantined part of northwestern Texas.

Grasshopper control operations concluded during the summer of 1944 gave protection to 4,750,000 acres of crops worth more than $22,000,000. Approximately 2,200,000 acres were baited in the combined operations. Adult and egg surveys made in the fall of 1944 indicated that the grasshopper infestation in 1945 would be of approximately the same extent and intensity as that in 1944. Cool, wet weather, which prevailed over much of the infested area throughout the spring months of 1945, greatly reduced grasshopper hatching and development and delayed control operations.

Operations in connection with the Dutch elm disease control program were modified to concentrate on determining where the disease occurs, on advising elm owners of the nature of the disease and recommending ways of combating it, and on testing methods of disease control in selected areas. There was some extension of the known limits of infection, and this afforded a basis for establishing quarantine regulations to prevent movement of host material to uninfected areas.

Barberry eradication work during the year involved complete coverage of 10,384 square miles and destruction of 1,094,726 barberry bushes. No general epidemic of stem rust developed in 1944, although there were severe local epidemics in some sections west of the Mississippi River. East of the Mississippi the amount of damage was negligible.

The white pine blister rust control program was conducted during 1944 on much the same basis as for the previous calendar year and, in general, accomplishments were about the same. Control work performed resulted in the removal of over 16 million ribes bushes from 969,372 acres of control area, of which 490,014 acres were initial eradication and 479,358 acres rework.

Revised Japanese beetle quarantine regulations were issued, effective Feb. 17, 1945. This revision brought within the regulated area sections of Maryland, New York, Ohio, and Pennsylvania. The use of tight railway refrigerator cars for the bulk fumigation of plant material with methyl bromide was authorized during the year.

A revision of the pink bollworm quarantine (foreign) and regulations provided for the entry of cottonseed and cottonseed hulls from sterilized seed produced in portions of the state of Tamaulipas, Mexico, effective Nov. 11, 1944. Effective Nov. 9, 1944, the quarantine (domestic) and regulations were revised to include recently found infestations of the pink bollworm in southern Texas.

Developments in the war situation strongly affected plant-quarantine enforcement at maritime ports. Ship arrivals during the fiscal year 1945 increased 30 per cent over those of 1944 to a total of 35,555.

The army program for returning troops from Europe by airplane accelerated the rapid growth of air-borne commerce in 1945. During the fiscal year ended June 30, 1945, 45,728 airplanes were inspected at 42 ports of entry, which represents an increase of 112 per cent over the previous year. It was necessary to provide plant-quarantine protection at 5 ports formerly without this service. Plant-quarantine inspection has now been

inaugurated in Alaska, a step brought about by air traffic into the territory.

The survey of the more important food crops growing in the environs of ports of entry and international airports on the Pacific, Gulf, and Atlantic coasts and along the Mexican border for introduced pests, commenced in June 1943, was continued. Approximately 12,000 lots of insect material and 2,000 lots of plant pathological specimens were submitted for determination during the year ended June 30, 1945. Identification disclosed several insects known to be of economic importance in foreign countries and heretofore unknown in the United States as well as new distribution records for a number of insects known to occur in limited areas in the United States.

Office of Experiment Stations.—The primary functions of the Office of Experiment Stations under the direction of James T. Jardine, chief, are to represent the U. S. Department of Agriculture in the administration of the acts of Congress authorizing appropriations for the support of the state and territorial agricultural experiment stations in the 48 states, Hawaii, Alaska, and Puerto Rico, and to administer the federal experiment station in Puerto Rico. The Hatch Act of 1887 authorized federal aid to the states in establishing the experiment stations for the purpose of aiding in acquiring and diffusing useful and practical information on subjects connected with agriculture and promoting scientific investigation and experiments with respect to the principles and applications of agricultural science.

In carrying out this purpose the needs of the United States and the individual states and territories are each given due attention. With this broad objective in mind, the office advises and assists the experiment stations in planning their research programs and, through annual review of projects, offers suggestions as to current progress and proposed work under the federal-grant funds, having in mind the promotion of maximum accomplishments and co-operative effort to avoid duplication. In reviewing new projects proposed by the stations, consideration is given to the possibility that the objectives of the work may be aided by arranging co-operation with department research along similar lines, and specific suggestions are made where pertinent. When agreement is reached as to co-operation between department agencies and stations, memoranda of understanding are developed which specify the facilities, personnel, and funds to be furnished by each agency. More than 1,100 formal memoranda of understanding, representing approximately 1,000 separate co-operative undertakings, are now in effect. Many of these memoranda provide for research on regional or national problems with groups of stations and the department. In such cases each station may work on some local aspect of an over-all problem, as, for example, the improvement of small grains to meet the particular requirements of the state or local area. In the aggregate, effective service is rendered to the major regions and the nation as a whole by adapting local findings to larger areas.

In 1945 the experiment stations had available for use under the federal-grant acts a total of $7,001,208. They also had available for agricultural investigations from non-federal sources approximately $20,000,000. Station research programs under the federal funds were carried out under a total of 3,434 projects, of which 516 were new or revised during the year. Approximately 4,800 research projects were supported by non-federal funds. As in previous years, the stations in 1945 were again taxed to the limits of their resources to keep pace with the demand for facts needed to assure maximum production of agricultural products and their effective use to promote the war effort. Each of the stations contributed new information helpful in the solution of local problems and shared with federal agencies in the assembling and interpretation of data on which national and regional agricultural programs were based and high production achieved.

A wartime job undertaken at the request of the National Research Council was the nation-wide survey of the vitamin A content of butter. The study was made by the Bureau of Dairy Industry and the Office of Experiment Stations in co-operation with 19 state agricultural experiment stations. Samples of butter were obtained in the usual commercial channels during different seasons and in the principal areas of the participating states. The carotene and vitamin A content was determined by uniform methods worked out by a technical committee. Data obtained were assembled in a preliminary report published by the department, with a more detailed technical report to follow. The average butter produced in the United States was found to contain over 15,000 international units of vitamin A per pound, or enough to supply under normal consumption about 15 per cent of the recommended daily intake.

More than 100 progress notes have been released giving results to date under the national co-operative studies on conservation of nutritive values of foods. Practically every station aided the study by investigating one or more foods. Information developed by these studies has been given prompt local application and has been helpful nationally as a guide to better nutrition. The office continued to assist in co-ordinating the work and rendered other help of an over-all character.

All stations contributed during the year as formerly to the development and interpretation of information needed in setting up production goals and for postwar planning.

Continuing work undertaken last year upon request of the War Food Administration, the office assembled information on current and proposed investigations of the stations on the feeding value of potatoes for different kinds of livestock. In all, 16 stations reported on current, proposed, or past investigations in this field. The information was issued by the office in mimeographed form for use by the stations, the War Food Administration, and the department.

For many years the office has issued annually a mimeographed list of projects and publications covering experiment station research in home economics. Because of the current widespread interest in foods, this compilation has been expanded to include as far as possible all state experiment station research pertaining to foods and nutrition of interest to the consumer, regardless of the station, department, or division involved.

Printed publications issued during the year by the office included the report of the chief of the office for 1944; the report to Congress on the agricultural experiment stations for the fiscal year 1944; a list of workers in subjects pertaining to agriculture in land-grant colleges and experiment stations for 1944–45; and two publications of the federal experiment station in Puerto Rico. A total of 6,958 abstracts of current scientific research in agriculture and home economics were published in volumes 91 and 92 of the *Experiment Station Record*. In selecting material for abstracting, especial attention was given to publications of di-

rect interest to American workers appearing in such foreign publications as were available. Included among these were a considerably increased number from Latin America.

The federal experiment station in Puerto Rico, under the administrative supervision of the office, conducts research aimed at increasing the production of strategic agricultural crops of value to the United States and improving practices to make the growing of tropical crops of greater economic benefit to the people of Puerto Rico. Problems of immediate concern involve the production of rotenone-producing plants, the growing of *Cinchona*, from which quinine is obtained, and the improvement of other crops, including breeding, insect pest and disease control, and culture.

In carrying out the program of increasing sources of rotenone in the Western Hemisphere, plantings of over 35,000 plants of high-yielding strains of *Derris* were established by the station and more than 2½ million plants and cuttings were furnished for distribution throughout Latin America. To facilitate development of an American source of quinine, several thousand seedlings grown from seed of *Cinchona* flown out of the Philippines just before the Japanese occupation are now field-planted in Puerto Rico.

Seed and other planting material of food crops on which the station has worked experimentally were distributed during the year in conjunction with the war emergency program of the insular government. The distribution included USDA–34 sweet corn, Seminole soybeans, and yams. The USDA–34 sweet corn, a variety developed by the station several years ago, has attained particular prominence during the year. It has become widely distributed throughout the tropical islands of the Pacific, shipments of seed having been transported by air from Puerto Rico to such points as New Guinea, Guadalcanal, and other islands in order to provide fresh sweet corn for our armed forces. This is the only variety of sweet corn particularly adapted to tropical conditions.

The Tropical Plant Introduction Garden established by the station in 1902 now includes over 7,000 species of tropical plants of present or potential value as sources of planting material. The garden has served as an important source of material for the research program of the station and for distribution to meet many requests from the armed forces and countries in Latin America. At this time the station, through the co-operation of other agencies, is assembling the highest yielding strains of the rubber tree *Hevea basiliensis* from the Far East and Brazil.

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AGRICULTURE, Review of. Farm production in the United States in 1945 resulted in the largest volume of food grains on record, the second largest volume of feed grains, and the second or third largest quantity of livestock products. Crop and livestock production together was nearly as large as the country has ever produced. Up to the time small grains were mature the farming season was greatly in their favor, though it was less favorable for other crops. Then it became favorable for the late maturing crops, which previously had encountered unfavorable weather. Harvesting of most crops was accomplished with a minimum of loss.

Preparation of seedbeds in the fall of 1944 was difficult, and farmers had to sow considerable acreages of fall grains in dry ground or later than usual, particularly in the southern Great Plains, the Pacific Northwest, and to some extent in the corn belt. But October rains speeded seeding operations and enabled grains seeded in the dust to germinate. Yield prospects at the beginning of the winter were above average, and early spring conditions further improved them.

Fall sown grains emerged from the winter in good condition; hay and pastures made an excellent start. By April 1, thanks to an unusually warm period in late March, the seeding of small grains was further advanced than usual. Stocks of feed grains were abundant and liberal feeding coupled with favorable weather resulted in record rates of production of milk and eggs. Fruit, early vegetables, gardens and some other crops, however, suffered from widespread freezing temperatures. Excessive rains and floods over wide areas caused damage and loss of acreage, while cool weather retarded vegetative growth and restricted the germination of spring sown crops.

One of the coldest Mays on record, with occasional frosts and persistent rains, impaired crop prospects and delayed spring planting operations. Drought developed in the Southeast and threatened to develop in the Southwest. But farmers took advantage of every break in the weather, mustered and pooled available power equipment and family labor, and planted a surprisingly large acreage, though later than usual. Some corn acreage was not planted until well after July 1.

Heavy production of small grains was assured by ideal July weather for filling, maturing, and harvesting of these crops which offset the factor of lateness. Hay and pastures flourished. Corn, however, developed slowly until favored by warmer and dryer weather in August and September. Frosts at near usual dates in parts of the corn belt resulted in considerable "soft" and "wet" corn.

Combined acreage of all crops harvested was estimated at 353 million acres. This was only slightly less than in 1944, and was the second largest since the period 1928 to 1932, when the range was 353 to 363 million acres. Farmers could not plant all the planned acreage of corn, sorghums and small grains, particularly barley. A big shift took place from row crops to small grains, encouraged by lighter labor requirements for the latter, by favorable planting conditions in late fall and early spring, and by light abandonment of winter wheat. Increased acreages of tobacco, sugar beets, and truck crops were planted, despite high labor requirements. On the other hand, the acreage of cotton was reduced 10 per cent from 1944 to 18,355,000 acres, the smallest acreage of the century. Farmers planted less than the goal acreages of corn, barley, rye, flax, sorghum, potatoes, sweet potatoes, dry beans, soybeans, peanuts, cotton and sugar crops. In the aggregate these crops were nearly 12 million acres or 3 per cent below the goals. Crops requiring large amounts of labor usually did not reach the acreage goals.

A second successive billion-bushel wheat crop was harvested. The 1,150,000,000 bushels produced exceeded the previous record crop of 1944 by nearly 7 per cent. The yield, at 17.7 bushels per harvested acre, was well above the average, though it has been exceeded several times. The relatively large proportion of the seeded acreage of winter wheat remaining for harvest as grain, coupled with a relatively large spring wheat

crop, were major factors in the record production. The rye crop was relatively small, though yields were well above average. Rice yielded well and produced a record crop in spite of a disastrous tropical storm in the rice area of Texas. Buckwheat production was above average, but below that of 1944.

Corn production, for the fourth successive year, exceeded 3 billion bushels; the corn crop was the third largest of record. The yield per harvested acre was exceeded only in 1942. About 64 per cent of the acreage was planted with hybrid seed. This was an important factor from the yield standpoint, and in enabling the crop, which had been planted under adverse conditions, to mature quickly and uniformly enough to escape major frost damage. Frosts occurred at about the usual dates in the northern and western corn belt.

Farmers harvested the first 1,500,000,000 bushel oats crop. Moderate temperatures and abundant moisture in main producing areas prolonged the development period, counteracted the effects of late planting, and resulted in high test weight and a heavy yield per acre, particularly in states with large acreages of oats. Barley, grown on a smaller than average acreage, made the highest yield per acre since 1915, and the production was slightly above the average. Acreage of sorghum grain was limited by relatively light abandonment of wheat acreage in the Southwest, where abandoned wheat land is often replanted to sorghums. On much of the acreage the sorghum crop was planted late. Moreover, it suffered from dry weather and from frosts; nevertheless, although much below the 1944 crop, it was the third largest ever produced.

Cotton production, on the smallest acreage harvested since 1885, was less than 9,500,000 bales and with the exception of the 1921 crop was the smallest since 1899. Plantings were late and the season was unusually wet. As a result, the growth was rank, and harvesting and ginning extremely slow.

Tobacco, for the first time in history, passed the 2 billion pound mark. Good growing conditions favored the late crop. Production of peanuts was more than 2,174,000,000 pounds—near the all-time record. It was 47 per cent above the 1934–43 average. Production of soybeans fell below the large crops of 1943 and 1944. Much of the soybean acreage was planted late and the pods did not fill as well as was expected. Dry beans were the smallest crop since 1936, and many of the beans were immature or damaged by frost and rain. Hay, potatoes, and flaxseed were near-record crops, and the outturn of sweet potatoes was above average.

The citrus crop promised to be a record. Peaches, pears, and sweet cherries were record crops. On the other hand, apples, and sour cherries were record lows. Together, the citrus and deciduous fruit crops were about 4 per cent less than in 1944, but 18 per cent above the average. Production of tree nuts was slightly less than in 1944, and about a third more than average. Production of commercial vegetables for the year set a new high record; it was at least a fourth above average. Output of vegetables grown for processing exceeded the average by more than 40 per cent. Seed crops suffered from unusually wet weather at harvest time; yet the production was above average, and indicated relatively few seeds would fall short of 1946 requirements.

Total food grain production was 37 million tons—2 million tons more than in any other year. Total feed grain production was 121 million tons. Together with the big hay crop and a large tonnage of other roughages, it gave a feed supply exceeded only once before—in 1942. At the beginning of the October feeding season, supplies of feed per animal unit were the largest in the 20 years of record. Pastures and green feeds were abundant until the late date.

Production of livestock and livestock products in 1945 was at about the same level as in 1944—only 5 per cent below the all-time high of 1943. It was estimated that approximately 45 billion pounds live weight of cattle, hogs, sheep, and poultry would be produced in 1945, or about 6 billion pounds less than the 1943 production and slightly less than that of 1944 or 1942, but substantially more than that of any other year. Milk production promised to establish a new record at about 123 billion pounds; production per cow was near the record level. Farm poultry produced eggs at a record rate per layer; but the number of layers averaged 8 per cent less than in 1944. Farm production of eggs in 1945 was expected to reach 4,600,000,000 dozen—second only to the 1944 record.

Farm-Producing Capacity.—In 1944 and 1945, the volume of American farm production for sale and for use in the farm home was about one third higher than in the prewar years 1935–39. Probably not more than one fourth of the wartime increase in farm production can be attributed to better than average weather. True, the weather was favorable during the war years. But an analysis of other major factors involved, notably shifts from animal to tractor power, increased use of fertilizer and lime, the use of improved crop varieties, the increased use of cover crops and other conservation practices, pest and disease control, and better feeding of livestock, shows that influences other than weather account for most of the wartime increase in output.

Farmers adopted improved practices to an extent in the war years that could not have been predicted from prewar trends. Financial and patriotic incentives brought about almost a technical revolution. For example, use of commercial fertilizer plant nutrients in 1944 was 85 per cent above the prewar (1935–39) average. Use of lime almost tripled. Acreage of winter cover crops increased more than threefold, and other conservation practices came into use extensively. Adoption of improved varieties such as hybrid corn, the shift to intertilled crops such as soybeans, peanuts, and corn, and a pronounced shift from grass hay to legume hay, resulted in notable production gains.

Livestock feeding practices showed great improvement, both in the use of high protein feeds and in the balancing of concentrates with roughages. Livestock output is still far above prewar levels. Since the fall of 1943 it has been maintained only to a very moderate extent by drafts on feed grain reserves and grain imports. Most of the increase has resulted from current production of grain, hay, and pasture. Meat and milk production benefited greatly from a more adequate balancing of rations.

Manifestly, technical progress of the kinds above mentioned may be expected to carry over strongly into peace years, since it reduces production costs. The wartime increase in mechanical power will probably continue. This is the continuation of a long-time trend, which began noticeably with the First World War years. Since 1920, the shift to mechanical power on

farms, paced by a decline in the number of work animals in cities, has released about 50 million crop acres formerly required to produce feed for work stock. This land is now producing foods and fibers. Mechanization advanced in the war years despite restrictions on farm machinery production, with the result, for example, that on Jan. 1, 1945, the number of tractors on farms was 12 per cent greater than on Jan. 1, 1942. Probably farmers will buy new tractors and other equipment in greater quantities than ever when the supply permits. Such machinery, besides saving labor on the farm, saves time when time is precious, as in seeding or harvesting.

Probably some of the wartime increase factors will be stronger in postwar years, mechanization particularly. Substitution of tractors for work animals may release as much as 10 million additional acres of cropland by 1950. This will have a favorable influence on yields, because it will facilitate more thorough tillage and more timely performance of crop operations.

Farmers may use fertilizer in greater quantities. Many of them have had a very profitable experience with fertilizers; they would have used more in the war years had more been available. Under prosperity conditions as shown elsewhere in this report, it would pay most farmers to use more fertilizer and also more lime. Certainly, the increased use of fertilizer will not disappear when the war is over; nor will the greater use of winter cover crops and other soil-improving practices.

Use of improved varieties, after an initial expansion, tends to level off. For example, the percentage increase in the use of hybrid corn may be expected to decline. But the plant scientists, through experimentation with additional crops, are constantly providing new opportunities. Livestock raising will undoubtedly continue to make more use of balanced rations. Some decrease factors, notably conservation reasons for reducing the acreage in intertilled crops and for restoring some land to permanent grass cover, will not substantially change the balance of forces.

On the whole, the technical forces that make for increased production on the increase side are much stronger than the forces on the decrease side. How they will operate in postwar years depends greatly on the postwar level of farm prices. With returns fairly satisfactory, farm production for the market could rise by say 1950–55 to possibly 45 per cent above the prewar average. Under depressed conditions, with farm incomes low, the production forces would be weakened, because under such conditions farmers would purchase less labor, fertilizer, and machinery. But they would continue many recently adopted improved practices, especially those that mean a lower cost as well as an increased volume of production.

Moreover, farmers must often maximize their production in order to meet their high fixed costs, even if prices fall. Farmers did so in the depression years 1930–33. Once the level of farm production has increased, it tends to remain high; it is relatively unresponsive to price declines. After the farm investment has been made, it tends to be used, almost regardless of changes in the price level; this applies to equipment and machinery, as well as to land. Farm productivity will unquestionably have great momentum in postwar years.

Expanded farm production in the United States will tend to remain high, and in important products will exceed the domestic demand at remunerative prices, even with employment and business active. A high rate of consumption at home and abroad will have to be maintained or else farm production will have to be reduced. Export outlets are essential. Moreover, the export trade will have to be built up again from practically zero; under war conditions *commercial* farm exports are down to a very low level. Temporarily, in addition to revived exportation of the staples, the United States may want to export certain things, such as dairy products and eggs, which previously it did not send abroad to any great extent. Farm production capacity has expanded, however, in other agricultural exporting countries, and also in England, an agricultural importing country. Eventually, though not perhaps in the immediate postwar years, the competition for world markets will be sharp. Vigorous worldwide expansion in economic activity would balance this growth in farm production capacity, except in a few important commodities such as wheat, rice, cotton, wool, and fats and oils. Getting such expansion is part of the world trade problem.

Preferably, agriculture's problem should be solved by measures to maintain and enlarge the world *demand.* The other way of getting supply and demand into balance, namely the way of downward crop adjustments, is not satisfactory. In the first place, agriculture cannot readily adjust its production downward; it has too high a proportion of *fixed* costs, too few crops among which to choose in each locality, and frequently considerable overmanning of the land. Secondly, crop curtailment is a scarcity program, which conflicts with basic human needs. In serious crises resort to curtailment may be unavoidable. But the United Nations are trying to develop means of sustaining and raising the level of economic activity, so that consumption will increase and make general crop curtailment either needless or merely occasional, moderate, and temporary. Here is the master key to greater and better world trade.

Food Conditions Abroad.—In most other countries lessened food production, combined with transportation difficulties and with some tendency for food-collection systems to break down threatens widespread hardship and suffering. As usual in the aftermath of war, the towns and cities will suffer most. This is a result not only of the fact that country people have the first chance to satisfy their food wants, but also of the fact that war disrupts trade between town and country. Farmers may have more food than they need themselves, and yet be unwilling to part with it for what they can get in exchange. Action to move food from surplus countries and areas to deficit countries and areas will be indispensable, if actual starvation is not to occur in many urban centers. Cereals, fats, and sugar are the most urgently needed products.

Food conditions will be below normal in the Orient as well as in Europe. Production will be low, not only in the areas formerly occupied by the Japanese, but also in Japan. Food output in Japan has declined nearly as much as in continental Europe. Japan, like continental Europe, is partly dependent on outside food supplies—in prewar years it depended more on food imports than continental Europe did. As in Europe, the food crisis in the Orient comes from shortages of fertilizers, draft power, and manpower and from a breakdown of normal trade. Rice production, for example, is much below prewar in the surplus-producing areas of southeastern Asia as

a result partly of the above-mentioned shortages and partly of the loss of outside markets.

Total 1945–46 world output of food in calories may be about 3 per cent less than the prewar average. Considering what the world has been through, this looks like a small reduction. But allowance must be made for population growth. On a per capita basis, the 1945–46 world food production may be 10 per cent below prewar, or enough lower to make a very serious food situation apart from other difficulties. Moreover, the international distribution will be very unequal; some countries, notably those of the Western Hemisphere, will have more food than they had before the war, but others will have much less. World stocks of many durable foods, such as rice, fats and oils, and sugar, will be extremely low. Even wheat, though available in a quantity above the prewar average, will be in smaller supply than during the war years.

These and other outstanding facts about the world food situation appear in a survey recently completed by the Office of Foreign Agricultural Relations, U. S. Department of Agriculture. The survey was based on regular agricultural reports from foreign governments, on special reports sent by United States officials stationed abroad, and on information collected by United States officials who traveled widely. Food production has declined most in continental Europe, (not including the USSR) and North Africa, partly as a result of drought in these regions, along with difficulties caused by the war. Probably the output in continental Europe and North Africa combined will be as much as 15 per cent below that of 1943–44, and as much as 25 per cent below the prewar average. Food actually available for consumption has declined somewhat less than the production, because of rigid economies in food utilization such as a higher cereal extraction rate in flour milling.

Allied Nations Contributions to War Food Supply. —The seriousness of the world food situation has focused attention on the extent to which the Allied nations have severally contributed to the food supply needed to win the war. It is now possible, since restrictions upon publication of production and trade statistics have been relaxed, to answer this question and also some related questions, such as: (1) To what extent have the Allied nations expanded their exports of food? (2) How have United States food exports during the Second World War compared with those of the First World War? (3) Where have these food exports gone?

From 1942 through 1944 production trends and food exports of the Allied nations varied widely. Some countries were better able to expand their food production than others, and the shortage of shipping necessitated obtaining as much food as possible from countries nearest the critical war areas. These factors, plus unusually good weather for production in North America, resulted in large expansion in food production and also in exports from the United States and from Canada.

Nevertheless, the United Kingdom was highest in the percentage increase in food production. The United States was second. The British food production increase—66 per cent for the three years 1942, 1943, and 1944 over the 1935–39 period—resulted from an increase in the cultivated acreage of about 50 per cent, the conversion of much cultivated acreage to food crops, and great restriction of the meat and egg output.

Great Britain's emphasis on domestic production of food reduced greatly the amount of shipping space required for its food imports, but made the British more dependent upon foreign meat and eggs. In consequence the need for expanded production of meat and eggs in food exporting countries, especially the United States, was increased.

The food production increase in the United States for the three years, on a calorie basis, was 36 per cent over the 1935–39 period. In Canada, third in expanded food production, the corresponding increase was 30 per cent.

Production of food in 11 important food exporting and importing countries during 1942–44 is shown below, as a percentage of prewar years. These percentages were computed from the caloric value of the different food products at the farm. This means was used to obtain aggregates of total production in each country because it provides a uniform method of comparison for the several countries.

The percentages obtained by this method, however, differ slightly from those which would be obtained if production were weighted by average prices in each country. For example, in the United States the aggregate output in food products in 1944, weighted by farm prices, was 138 per cent of the 1935–39 average; whereas weighting by calories gives a percentage of 142. All other parts of this article observe the farm price weighting method.

ALLIED NATIONS: FOOD PRODUCTION IN SELECTED COUNTRIES, 1942–44, AS PER CENT OF PREWAR AVERAGE (1935–39 = 100)

Country	Production[1]		
	1942	1943	1944[2]
	Per cent	Per cent	Per cent
United Kingdom	158	172	168
United States	133	132	142
Canada	168	93	130
Brazil	127	130	116
Chile	105	112	114
New Zealand	111	103	108
India	100	113	102
Uruguay	100	120	101
Egypt	103	97	100
Argentina	104	125	96
Australia	102	83	68

Office of Foreign Agricultural Relations.
[1] Farm output of food products weighted by calories, from a study of "Wartime Changes in Food Production," Office of Foreign Agricultural Relations, December 1944.
[2] Preliminary.

Consideration of the quantities of food supplies by the various Allied countries to the war effort must allow for their relative productive capacity and for the amounts of food they had available after meeting their domestic needs.

Naturally, for instance, New Zealand with less than 2,000,000 population could not supply as much food as the United States with 135,000,000 population. On the other hand, New Zealand normally exports a large proportion of its food production, whereas nearly all the food normally produced in the United States is consumed domestically. Hence the food supplied *per capita* from New Zealand for the war effort should be greater than from the United States.

It was relatively easy for the United States, from a percentage standpoint, to increase its food exports in the three years 1942–44 over the small prewar export level and at the same time to provide larger military and civilian food supplies. But for New Zealand to have increased its exports by even a small percentage would have

been extremely difficult and would have required either a very large expansion in production, or a substantial reduction in New Zealand's consumption per capita.

The United States led in the volume of food exports in the three-year period: its shipments abroad amounted to 33 per cent of the total quantity shipped by 10 allied food exporting countries. Canada and Argentina were next with about 17 per cent each. The percentage valuation of New Zealand and Australian exports—about 9 per cent—was high, in view of the small populations of those countries and the further fact that Australia suffered from a devastating drought.

Changes in the food exports of the different Allied nations were much greater than the changes in their food production as the following table shows:

FOOD EXPORTS: FROM SELECTED ALLIED NATIONS, 1942–44 AS PER CENT OF PREWAR[2] AND AS PER CENT OF TOTAL

Country	Value of exports[1]				Average 1942–1944	
	Prewar	1942	1943	1944	Per cent of prewar	Per cent of total
	Million dollars				Per cent	Per cent
United States	212	638	950	931	395	33.0
Canada[3]	217	288	415	529	189	16.2
Argentina	548	418	420	490	81	17.4
Brazil	230	168	174	195	78	7.1
Uruguay	58	38	49	50	73	1.7
Chile	10	8	8	8	78	.3
Australia	272	206	214	268	84	9.0
New Zealand	242	249	226	214	95	9.0
India	196	145	146	...	74	[4]5.7
Egypt	24	16	14	...	62	[4].6

Official sources.

[1] Exports of each country valued at average 1935–39 prices of products exported by the United States; commodities not exported valued at United States import prices for same period.

[2] Either 1934–35 to 1938–39 fiscal years or 1935–39 calendar years.

[3] Includes value of feed grains exported mainly to the United States.

[4] Based on a two-year average.

Comparison of the Second World War exports with those of the First World War is possible only roughly. Exact measures are not available. The United States total food output expanded much more during the Second World War than it did during the First World War. From 1935–39 to 1944 the increase weighted by farm prices was about 38 per cent, whereas from 1909–13 to 1918 the increase was only about 16 per cent. Likewise the food exports of the United States increased more sharply in the Second World War. Yet the per capita supplies of food for civilians, after deducting exports and military needs, were greater during 1942–44 than in the First World War, and greater than in the prewar (1935–39) years. Shortages of some commodities developed but the aggregate supply for civilians was at a record high level. While United States exports of other essential foods increased sharply in the years 1942–44, exports of cereals, which were in abundant supply, declined.

In the prewar period, about half of the United States food export traffic was in the form of grain; and the wartime drop in grain exports has largely offset, especially in terms of calories, the increase in exports of dairy products, and fats and oils. Overseas shipments of meats, eggs, and dairy products before the Second World War were insignificant. Phenomenal percentage increase took place in the wartime exports of these commodities. Meat and egg exports in 1943 were 22 times as large as in the prewar period; the outflow of dairy products increased 35 times. Exports of fats and oils soared.

Wheat.—Conditions in the next year or two may keep wheat acreage in the United States at about what it is now. Stocks of wheat, and likewise those of other wheat-exporting countries, have been reduced considerably. In the 1945–46 marketing year, world trade in wheat may absorb most of the remaining surpluses in the wheat exporting countries. The price of wheat in the United States in 1945 was the highest since 1925; it was considerably above that of any other exporting country.

Temporarily, the United States is exporting flour under subsidy, as authorized by section 32 of Public Law 320, 74th Congress, as amended. Also, some wheat grain was exported under subsidy. Subsequently, military and relief requirements increased the overseas requirement. These commitments may maintain export wheat demand through another year at least. Eventually, however, the export-subsidy authorization may have to be applied increasingly, since maintenance of a large wheat acreage for several years will necessarily raise surplus-disposal problems.

Federal legislation provides price-support loans to wheat farmers. Under the Agricultural Adjustment Act of 1938, as amended by the Stabilization Act of Oct. 2, 1942, loans are available to co-operating farmers at 90 per cent of parity on wheat harvested before the expiration of the two-year period beginning the first of January following the official proclamation that hostilities have ceased. There is a limiting condition. Such loans are available "provided producers have not disapproved marketing quotas."

Cotton.—Over many years the quantity of cotton, American and foreign combined, which moved in peacetime from producing countries into world trade approximated 13 million bales. In the war years the volume shrank to 4 million or less. Victory is now reopening world trade channels, but it does not automatically assure restoration of the world's trade in cotton. Markets for cotton abroad have suffered from physical injury to cotton mills and also from general impairment of the economic order. For example, America's allies have incurred debts that depress their standards of living and impede resumption of their purchases. Aggressor countries have brought ruin upon themselves and involved many other countries in disaster.

The relief total of cotton sent abroad will not be large. The United States, however, will undoubtedly lend funds abroad in considerable amounts, as it did after the last war. Such lending and other palliatives will help to restore markets; but, until former customers can build up their external purchasing power, the United States must expect them to restrict their imports of cotton and to make increased use of synthetic fibers.

This prospect emphasizes the gravity of the cotton supply situation. World stocks on Aug. 1,

1945, were close to 26 million bales, or more than a year's consumption at the current rate. The oncoming crop, added to their carry overs, will give cotton-producing countries more than 20 million bales for export, after they have allowed for all domestic requirements for consumption and working stocks. This is more than double and possibly three times the total world export trade that now seems probable in the current year.

Two important facts should be noted. First, before the war the United States held the bulk of the world cotton surplus; now every other exporting country of importance has an unprecedented surplus. Secondly, former efforts by the United States to uphold prices made it easy in some years for other countries to undersell the United States abroad; but America is now in a position, under the Surplus Property Disposal Act, to export cotton at competitive prices. By means of its export program and credits this country could get a very large share of the reduced world trade in cotton.

Temporarily, such a course would move part of the American surplus and discourage cotton production in other countries. But it would be a dubious procedure in the long run. For example, it would raise doubts as to the sincerity of America's efforts to resolve world difficulties through international co-operation.

The United States government has been quick to assure the governments of other nations that it seeks no unfair advantage and wishes only to offset its handicaps in the international market. These have partly resulted, it should be noted, from measures the United States has taken internally to improve cotton prices—measures that have benefited foreign as well as American cotton growers. Hence, while insisting upon the right to retain its domestic and export programs, it has offered to negotiate an arrangement with other countries by which they may be protected from untoward or unintended consequences. The arrangement would provide for an equitable sharing of the international trade and for concerted action in dealing with the surplus. Preliminary discussions are underway.

Feed Grains Problem.—Large supplies of feed grains and other feeds were on hand in the United States during the 1944–45 season, but the demand too was large—for feed, food, and industrial uses. In fact the demand exceeded the market supply, particularly for corn, throughout most of the feeding season. The disappearance was heavy, though not quite as heavy as in the two preceding seasons. Fewer hogs and chickens were on hand, but the rate of feeding per unit of livestock was about equal to the high rate of 1943–44. Moreover, the utilization of feed grain for food uses and industrial uses was greater than in the other war years, and greater than in most earlier years. Large quantities of feed grain went into the production of industrial alcohol.

In the 1945–46 feeding season the domestic supply of feed grains will be somewhat larger than it was in 1944–45, as a result chiefly of the 1945 large production. About the same number of livestock will be on farms. Consequently, the quantity of feed grains available per animal unit will be larger. This is a favorable development, because stocks of old-crop feed grain at the beginning of the 1945–46 season were much smaller than in prewar years. It is necessary to have increased reserves, against possible drought. Reserves of possibly 15 to 25 million tons of corn, oats, and barley need not be burdensome.

Postwar handling of feed grains poses problems sharply different from those presented by the great export crops. Agriculture produces feed grains, principally corn, feed-wheat, barley, oats, and grain sorghums, for its own use, either on the farms that grow these crops, or on farms and ranches whose operators purchase feed supplies. In other words, the market is domestic. This is also true to a considerable extent of the livestock that consume the grains, with hogs a partial exception. Hence in this connection, the difference between domestic and world prices is not vitally important; it does not suggest the use either of any two-price system, or of any program to make American feed grain prices fully competitive in world markets. National policy for feed grains must chiefly consider domestic requirements.

Dairying.—Transition from war to peace in dairying makes necessary the reversal of the policy of limiting domestic utilization of dairy products to one of stimulating civilian consumption. During the war the manufacture or distribution of every major dairy product was subject to controls designed to limit civilian consumption and make adequate supplies available for military and associated war uses. These limitations were necessary despite substantial increases in milk production. The increased production must be absorbed in civilian outlets as the wartime requirements are reduced. History has demonstrated that rapid contraction of milk production is not feasible. Moreover, from a nutritional standpoint maintenance of milk production is desirable.

With the advent of V-J Day near the end of the flush production season, the shift of milk from wartime utilization to domestic civilian use is being undertaken promptly. Military and other government agencies procuring dairy products maintained a policy of securing most of their annual requirements during the period of flush production. By acquiring sufficient stocks during spring and summer to tide war agencies over the winter, alternate periods of feast and famine in civilian distribution were avoided. Thus, stocks of dairy products held by or set aside for military agencies when war ended were sufficient and in some instances more than sufficient to feed the reduced personnel expected in the armed forces.

Meat Animals and Meats.—In meats the situation became extremely tight in 1945. Civilian consumption in the United States declined from the high level of 150 pounds per capita (wholesale weight) in 1944 to 125-130 pounds, approximately the same as under the 1935–39 average of 126 pounds per capita. Consumer purchasing power in 1945 was much greater than prewar. At prevailing prices, the supply of meat for civilians was only about three fourths as great as the potential demand. The shortage was accentuated by shortages of other foods, particularly poultry. Basically, the civilian meat shortage in 1945 was the result of reduced production of pork and of increased military needs.

Total meat production was nearly 2,000,000,000 pounds smaller than the record production of 24,600,000,000 pounds in 1944; yet it was over 6,000,000,000 pounds more than the average annual production of 16,200,000,000 pounds in the period 1935–39. Production of beef was moderately greater than in 1944; production of veal and of lamb was slightly less; pork production was 20 per cent less.

Fats and Oils.—The supplies of fats and oils

available for United States civilians in 1945 have been the smallest for many years. Several factors have contributed to this reduced supply, such as decreased quantity of lard, smaller supply of flaxseed, decreased imports, and substantial exports to Allied and liberated countries. During most of the year, rationing of edible fats and oils for civilians and industrial quotas to manufacturers was at the lowest level of the war.

The Second World War forcibly brought attention to the dependence of the United States on foreign countries for imports and exports of fats, oils, and oilseeds. Prior to the war, imports ranged from 1.5 to 2.5 billion pounds of fats and oils annually and represented 15 to 25 per cent of total consumption. With the Japanese occupation of the Pacific Islands, which were the principal sources of our imports, and the increased domestic demand created by the war industries, the United States supply situation became critical. Since the United Kingdom and the Soviet Union were also faced with desperate shortages of fats and oils, it became necessary for the United States to share its inadequate supplies with them.

To meet the acute situation, the United States government early in the war undertook several measures to stimulate greater production, such as paying a premium for heavy hogs and guaranteeing prices for vegetable oilseed crops. With the splendid co-operation of farmers and favorable weather, notable results were achieved during the past four years. Production of oils and fats in 1943 and 1944 reached an all-time high of nearly 11 billion pounds, about 3 billion pounds or 35 per cent above that of 1939. Production of vegetable oils from domestically grown soybeans, flaxseed, cottonseed, and peanuts during the past three years has been 75 per cent greater than in 1939. Total production in 1945 declined to below 10 billion pounds due to the sharp decrease in animal fat production.

The maintenance of the high level of vegetable oil production in the United States is a problem that warrants timely attention. The liberation of Europe created an unusual demand for fats and oils. Continental Europe, excluding Russia, has been the world's largest fats and oils consuming and importing area. Prewar consumption of both edible and inedible fats and oils amounted to about 14 billion pounds annually, of which 4 billion were imported. In the war years, European production of animal fats, which formerly accounted for about two thirds of the total, was materially reduced, owing to a shortage of livestock feed. Several liberated countries which were required to expand vegetable oilseed production under German control will continue to emphasize oilseed crops. Import requirements, however, will remain large. If world prices do not advance above present levels, available world supplies are likely to be inadequate to fulfill requirements in 1946. Even though hostilities have ended in the Pacific, new supplies available for Europe and the Western Hemisphere have thus far proved disappointingly small. Only moderate supplies will be available by the middle of 1946 and a longer period will be required before copra, palm oil, and soybeans will again be available in the prewar volume.

Poultry and Eggs.—During 1945 the poultry and egg industry experienced extremes of possible production and marketing conditions. At the beginning of fiscal 1945 it was just overcoming a surplus condition. The United States government was then purchasing large quantities of dried eggs not only for lend-lease purposes, but also as a means of supporting egg prices. It was purchasing shell eggs as an additional means of supporting prices. By October 1944, however, the surplus had substantially disappeared. Egg prices became firm in late November of 1944. Since then they have been practically at ceiling levels continuously, though a temporary decline occurred in September and early October of 1945.

Egg shortages were somewhat acute during most of 1945; they resulted largely from shortages that prevailed simultaneously in the supply of meats for civilians. In April, May, and June, egg prices rose substantially above the ceilings in many areas. Civilian consumption of eggs for 1945 may run close to 400 per capita as compared with 351 in 1944. Considerable substitution of eggs for meat occurred in all areas with the result that even in the midwestern surplus production area the supplies of eggs were far from being ample. In fact, war agencies were unable to procure their full requirements during the months of peak production. Nevertheless, through an extended use of priorities, the procurement program for shell eggs was about on schedule at the end of the fiscal year. However, the procurement of dried and frozen eggs was behind schedule.

Tobacco.—Tobacco had its peak year of war during 1944–45. Few other agricultural commodities, particularly nonfood items, contributed so large a proportion of production to strictly military use. The high rank with consumers was forcefully demonstrated by the record level of production, the huge volume of products taken for the armed forces, the turbulence of civilian efforts to obtain cigarettes and the heavy movements of leaf tobacco to those countries again able to ship stocks from the United States.

Despite an increase above the previous high record for 1943–44 of around 7 per cent in leaf tobacco usage and factory output, insufficient tobacco products were available during a part of the year to supply the increasingly large demand for civilians. The level of production was more than 50 per cent above the 1935–39 average and taxed manufacturers to capacity.

The manufacture of all kinds of tobacco products during 1944–45 increased over 1943–44. Cigarettes which amounted to nearly 80 per cent of the total volume of tobacco products increased about 7 per cent, smoking tobacco gained nearly 17 per cent, chewing tobacco and snuff went up about 2 per cent and cigars gained also. Consumer preference for cigarettes continued to dominate. The substantial increase in smoking tobacco may be attributed in large part to consumption by smokers unable to buy cigarettes. Cigar production likely would have been higher if manufacturers had been able to obtain more factory labor. The upward trend in output of higher priced cigars continued.

The Commodity Credit Corporation continued to handle most of the purchases for export, consisting of the requirements for the United Kingdom and its dominions and colonies. Small quantities were moved into export through regular commercial channels. About two thirds of the deliveries to the British were for cash and the remaining third for strictly military use was under lend-lease. With the termination of lend-lease following V-J Day, all deliveries have been paid for in cash by the British. The willingness to use dollar exchange for purchases of this commodity and the continuation of large require-

ments following the close of hostilities place tobacco near the top of the list of items eagerly sought by the British Empire countries.

During the war period, 1939 to 1945, the Commodity Credit Corporation handled approximately 1,700,000,000 pounds of tobacco primarily for use by America's fighting allies. About one half of this quantity was shipped under lend-lease and half was sold for cash.

Farm Income in 1945.—Cash receipts from farm marketings in the United States in 1945 may total about $20,400,000,000—3 per cent more than in 1944. The income from crops is expected to be 5 to 10 per cent above 1944. On the other hand, the income from livestock and livestock products will reflect decreased sales, particularly in hogs.

In volume the marketings (crops and livestock combined) will be about the same as the record total of 1944. It will include, however, an unusually large proportion of crops from the previous year's harvests. Comparatively heavy marketing of 1944 crops in 1945 resulted from several factors, notably the late maturity of 1944 cotton, the high moisture content of much 1944 corn, the shortage of rail transportation, and administrative orders that delayed tobacco marketings.

Total marketings of crops in 1945 were about 7 per cent greater than those of 1944, while marketings of livestock and livestock products were smaller by about the same percentage.

Prices received by farmers in 1945 may average about 2 per cent higher than in 1944. Livestock and livestock products will show a greater gain than crops.

Cash receipts from crops showed consistent monthly gains over 1944 up to and through September 1945, especially in the receipts from feed grains. Corn returned a higher income than in 1944; the receipts from oats rose sharply, because of the large 1945 crop. Income from wheat increased owing to the sale of parts of two record crops at relatively high prices. Income from vegetables increased substantially; truck crops prices during June, July, and August showed greater gains over 1944 than any other group of prices.

Cash receipts from livestock and livestock products increased only slightly. Despite a small percentage gain in hog prices, income from hog marketings declined sharply, as a result of drastically reduced sales. On the other hand, income from cattle and calves was higher than in 1944, because marketings were about the same while prices were up slightly. Poultry and eggs returned an increased income, mainly as a result of higher prices. Dairy products earned slightly more income for farmers as a result of slightly larger production.

Net returns to farmers reflect production expenses as well as cash receipts. Total expenses of farm production for 1945 may be 4 per cent above those of 1944, with increases relatively large in labor costs and in maintenance and depreciation. Wage rates were up about 8 per cent, and the value of perquisites to hired workers was up slightly, in line with the higher value of farm products. The total costs of hired labor in agriculture, for wages and perquisites, seemed likely to be about 7 per cent higher than in 1944. Expenditures for purchased feed declined.

Charges for maintenance and depreciation increased partly because farmers had more opportunity to replace outworn and outmoded equipment. Expenses of maintenance and depreciation may be from 5 to 10 per cent above 1944. Farmers are eager to replace old equipment, and also to buy fertilizer and lime in increased quantities as supplies become available.

Taxes and mortgage interest showed little change from 1944. Local tax assessments have shown little change throughout the war period, while farm indebtedness has decreased.

Analysis of the receipts and the expenditures indicates the net income to operators in 1945 may be about 3 per cent higher than in 1944. Value of products consumed in farm homes may be slightly higher; the rental value of operators' dwellings may show a small increase, in line with some rise that has taken place in real estate values; government payments will be about the same as last year. See also articles on the separate states and countries.

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AIR CONDITIONING. See ELECTRICAL AND ALLIED DEVELOPMENTS OF 1945.

AIR FORCES. See AERONAUTICS; ARMY OF THE UNITED STATES; NAVAL PROGRESS; WORLD WAR, SECOND.

AIR TRANSPORT. See AERONAUTICS.

AIRCRAFT CARRIERS. See NAVAL PROGRESS.

AIRPLANES. See AERONAUTICS.

ALABAMA, East South Central state, United States; admitted to the Union Dec. 14, 1819. Population (1940): rural, 1,977,020; urban, 855,941; total, 2,832,961. Land area, 51,078 square miles divided into 67 counties. Principal cities, with 1940 population: Birmingham, 267,583; Mobile, 78,720; Montgomery, the capital, 78,084; Gadsden, 36,975.

Chief State Officers, 1945.—Governor, Chauncey Sparks; lieutenant governor, L. Handy Ellis; secretary of state, Miss Sibyl Pool; treasurer, Walter C. Lusk; comptroller, I. C. Heck; attorney general, Robert Harwood.

Judiciary.—Chief justice, Alabama Supreme Court, Lucien D. Gardner; associate justices, William H. Thomas, Robert I. Simpson, Joel B. Brown, Arthur B. Foster, J. Ed Livingston, Thomas S. Lawson.

Legislature.—The state legislature (Senate, 35 members; House of Representatives, 106) convenes biennially in odd years on the first Tuesday in May.

Education.—Public elementary school teachers (1943-44)[1], 12,599; pupils, 451,984; average yearly salary of elementary school teachers, $854. Public high school teachers (1943–44) 6,839; students, 195,570; average yearly salary of high school teachers, $1,202. Education in Alabama is compulsory for children between the ages of 7 and 16, inclusive. There are five teacher training schools in the state, including one for Negroes. Total state appropriation for education in 1944, $24,251,570; appropriation by cities and counties, $9,969,747. State Superintendent of education, E. B. Norton.

Finances.—The following statement of Alabama's finances for the fiscal year 1944–45 was furnished by Walter C. Lusk, state treasurer:

Balance in treasury, beginning of fiscal year 1944–45	$ 43,095,979.77
Receipts, 1944–45	194,415,214.41
Total	$237,511,194.18
Disbursements, 1944–45	179,961,827.66
Balance, beginning of fiscal year 1945–46	$ 57,549,366.52

[1] Latest school year reported.

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1, estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bus.)	45,310	48,128	47,157
Oats (1,000 bus.)	2,729	4,608	5,064
Cotton (1,000 bales)	1,010	1,006	940
Hay, tame (1,000 tons)	699	716	752
Peanuts (1,000 lbs.)	238,682	327,600	332,050
Sweet potatoes (1,000 bus.)	6,548	6,699	5,865
Potatoes (1,000 bus.)	4,131	3,364	5,300
Peaches (1,000 bus.)	1,463	1,380	2,440
Pears (1,000 bus.)	291	312	416
Grapes (tons)	1,280	1,200	1,500

ALAND, ō'länd, **ISLANDS.** A group of about 300 (80 inhabited) islands and islets between the Gulf of Bothnia and the Baltic Sea, and near the mouth of the Gulf of Finland, composing a department of Finland; area, 551 square miles; population, 27,375; capital, Mariehamn. Aland is the largest island in the group, others being Lemland, Lumparland, Ekeroe, Fogloe, Kumlinge, Braendoe, Vordoe, and Hannoe. The harbor of Aland is capable of accommodating a large fleet. Chief towns are Aland and Castelholm. Strategically the islands are of great importance, since, properly fortified, they form a barrier between the Baltic and the Gulf of Bothnia and provide a naval base commanding the entrance to the Gulf of Finland. According to the North Sea Baltic Treaty of 1908, they were not to be fortified or used for military or naval purposes. They were nevertheless fortified by Finland. An agreement between Finland and the Soviet Union to demilitarize the island was signed on Oct. 11, 1940. This agreement went by the board when Finland joined Germany in the war against Russia in June 1941, and the islands were occupied by Finnish troops on June 23, 1941. However, the armistice signed by Russia and Finland in September 1944 reinstated the agreement in the following words: "The validity of the agreement on the Aland Islands, concluded between Finland and the Soviet Union Oct. 11, 1940, is fully restored." In January 1945 the islanders threatened secession, indignant at published reports that Finland had offered bases in the islands to Russia the previous fall in lieu of ceding the Porkkala district. Both Russia and Sweden opposed the separatist movement.

ALASKA. Discovered by Vitus Bering and Alexi Chirikof in 1741 and purchased from Russia by the United States of America for $7,200,000 in 1867, Alaska is one of the two duly constituted territories of the United States. It lies between the meridians of 130 degrees west and 172 degrees east longitude and between the parallels 54 degrees and 72 degrees north latitude. It has an area of 586,400 square miles and a civilian population of 72,524 by the 1940 census. As a result of wartime activities the population is now estimated at 100,000. The capital is Juneau, and other chief cities are Ketchikan, Wrangell, Petersburg, Anchorage, Fairbanks, and Nome. After its purchase from Russia it was first governed by the United States Army. Later it was created into a district, and in 1912 was given a territorial form of government under the Organic Act.

Government.—Alaska's new enlarged legislature met for the first time in 1945. Under the provisions of the amended Organic Act of 1912, Alaska had for the first time a cross-section representation in its House of Representatives as a result of representatives being elected on an apportionment of population basis, giving eight representatives to the First Judicial Division, seven to the Third Judicial Division, five to the Fourth Judicial Division and four to the Second Judicial Division. Its Senate, or upper house, was enlarged to give four senators from each of the four judicial divisions. Under this plan of giving greater representation to smaller communities, the legislature enacted laws pointing toward the development of the territory in the postwar period. It enacted for the first time an anti-discrimination law, being the first territory or state of the United States to enact such a law. It created an Alaskan Development Board which is now functioning, the purpose of which is to assist in guiding the way toward development of industry, commerce and transportation in conjunction with the federal government. It created for the first time in the territory a Department of Agriculture with the aim of working out an agricultural program in the territory and developing and settling potential agricultural lands. Extending the franchise to its younger citizens, it lowered the voting age to 18 years, subject to validation by Congress.

The Organic Act which creates a legislature for Alaska also provides for a delegate from Alaska to the Congress with a seat in the House of Representatives, but without vote. He is elected by the voters at large in Alaska for a term of two years. The present delegate is Edward L. Bartlett.

The territorial legislature is one branch of Alaska's government. It creates various territorial offices and appropriates for their upkeep. Territorial offices created and officials elected by the voters at large are: auditor, Frank A. Boyle; treasurer, Oscar G. Olson; attorney general, Ralph J. Rivers; highway engineer, W. Leonard Smith. Its total appropriation for the next biennium, April 1, 1945, to March 31, 1947, is $5,631,822.

The other branch of Alaska's government is federal. Under the federal government, the governor of Alaska is appointed by the president of the United States subject to confirmation by the United States Senate. The present governor is Ernest Gruening who has served since Dec. 6, 1939. The secretary of Alaska, who acts as governor in the absence of the chief executive, is also appointed by the president subject to confirmation by the Senate. The present secretary is Llewellyn M. Williams.

Judiciary.—All courts of the territory are under federal jurisdiction with one judge appointed by the president in each of the four judicial divisions. The judges appoint United States commissioners who act as lower court magistrates, probate judges, coroners and recorders. The United States marshals, one in each of the four divisions, are responsible for the maintenance of law and order outside of incorporated towns. Officials appointed by the governor, subject to approval by the legislature are the commissioner of education, commissioner of mines, commissioner of health, director of the department of public welfare, superintendent of the pioneers' home, director of the unemployment compensation commission, adjutant general, curator of the Alaska Historical Library and Museum and supervisor of the Alaska Aeronautics and Communication Commission.

Finances.—The territory has no public debt of any kind. Territorial taxes are levied by the legislature and federal agencies are supported by ap-

propriations from the Congress of the United States.

In the territory taxes are levied on mining, 3 per cent on the gross, plus a graduated net tax; on canned salmon, a pack case tax; a business license tax on industries, trade, businesses, and occupations, an excise tax on alcoholic liquors, and a one-cent per gallon tax on motor fuel.

Following is a statement of Alaska's finances for the fiscal year 1944–45, supplied by Oscar G. Olson, territorial treasurer:

Balance in treasury, beginning of fiscal year 1944–45	$ 930,063.85
Receipts, 1944–45	3,153,103.65
Total	$4,083,167.50
Disbursements, 1944–45	3,227,280.44
Balance, beginning of fiscal year Jan. 1, 1945	$ 855,887.06

Mining and Minerals.—With the cessation of hostilities, much military and naval construction work which had been going on during the war years ceased and Alaska began the major task of reconversion. Mining, which had been dormant since 1942, was beginning to show signs of revival. Plans were being made for the reopening of old properties in the spring of 1946 and the exploration and development of new potential fields. Although the war had ended the navy was still drilling for oil in the great naval reserve near Point Barrow, farthermost north settlement in North America.

Fishing Industry.—The fishing industry produced approximately 4,500,000 cases of salmon during the 1945 season. This was approximately one half million cases below the previous year due to a poor run of pink salmon in Southeast Alaska. Between 40 and 50 million pounds of halibut were taken from Alaskan waters during the year. Fur seals were taken from the Pribilofs, under government supervision, which had an estimated value of approximately $1,000,000. Other furs, such as mink, otter, fox, ermine, and marten were taken in large numbers. The average annual fur take in Alaska, aside from fur seals, is valued at $2,000,000.

Communications.—As a result, in part, of the war and coupled with a vast expansion program of the Civil Aeronautics Authority, one of Alaska's major means of transportation is air. In addition to being on two projected around the world routes, a large number of private companies operate within the territory, serving every community the length and breadth of the territory. A large part of the mail service in Alaska is by air. In addition to air, three steamship companies operate to the territory from Seattle, and two lines from Vancouver, British Columbia. The Alaska Railroad, operating from Seward to Fairbanks, serves a large area in the central part of the territory. This railroad is government owned and has headquarters in Anchorage. A system of highways also is in operation in interior Alaska connecting some of the major towns and leading to the eastern boundary of Alaska where it connects with the Alaska Military Highway, going from the territory to Edmonton, Canada, thence to continental United States.

The Alaska Communications System, operated by the United States Army, furnishes the territory with telegraphic service. This is supplemented by service of the Alaska Aeronautics and Communication Commission which particularly aids airplane traffic. In addition, interior Alaska towns have direct telephone communication over an army line leading to continental United States along the Alaska Military Highway.

Education.—Schools, within incorporated cities and incorporated school districts, and rural schools are provided for Alaska's children, for whom education is compulsory between the ages of 7 and 16, inclusive. In the 1944–45 school year, there were 55 public elementary schools in operation, employing 203 teachers and enrolling 4,636 pupils. Public senior high schools numbered 22, with 117 teachers and a student enrolment of 1,158. Elementary school teachers received an average yearly salary of $2,412; senior high school teachers, $2,439. Additional educational facilities for native children are provided by the Alaska Native Service, Department of the Interior. The University of Alaska, located at College, Alaska, near Fairbanks, offers four-year courses in agriculture, arts and letters, business administration, chemistry, civil engineering, education, general science, home economics, mining, and pre-medicine. The total territorial appropriation for education in 1944–45 amounted to $926,605.69; the appropriation by cities (1943–44) was $248,737.34 (exclusive of capital outlays). James C. Ryan is Alaska's commissioner of education.

Forests.—Alaska has two large national forests. The Chugach National Forest is located in the Prince William Sound region and Kenai Peninsula, and Tongass National Forest covers most of Southeast Alaska. Their combined area is 20,850,000 acres. Timber from these forests may be purchased and removed for use by local industries and individuals under forest regulations.

Fur Farming and Agriculture.—The fur farm acreage in Alaska, some of which is within the national forests, is 1,042,253. Farm lands comprise 1,775,752 acres and the acreage for general farming, fur farming and grazing is 66,296,000. Value of farm property including land and buildings is estimated at $3,841,045.

LEW M. WILLIAMS,
Acting Governor, Territory of Alaska.

ALBANIA (officially Shqiperia). A territory on the west coast of the Balkan Peninsula, bounded on the north and east by Yugoslavia, and southeast to the Adriatic Sea by Greece. Declared independent in 1912, Albania included the old Turkish provinces of Scutari, Yanina, Kossovo, and Monastir. During the subsequent period the state underwent many changes, becoming in turn a nominal principality, a republic, a parliamentary monarchy, an Italian protectorate, and a center of guerrilla resistance to the Axis until the German collapse in the spring of 1945. Area, 10,629 square miles; population (census of May 25, 1930), 1,003,124; chief towns: Tiranë (Tirana), the capital, 30,806; Shkodër (Scutari), 29,209; Korçë (Koritsa, Gortcha), 22,787; Elbasan, 13,796; Argyrokastroñ (Gjinokastër, Argyrokastro), 10,836; Berat (Berati), 10,403; Vlora (Vlorë, Valona), 9,100; Durrës (Durazzo), 8,739. In 1941 the districts of Ciamura in Greece and Kossovo in Yugoslavia were annexed to Albania under Axis auspices. The population is made up of two ethnic stocks—the Ghegs, in northern Albania, and the Tosks in the south. About 92 per cent of the people are Albanian, with a certain mixture of Vlach, especially in the Epirus region, 4.7 per cent Greeks, and 3.1 per cent other nationals.

Religion and Education.—Some 69 per cent of the total population are Muslims; about 10 per cent, chiefly in the north, are Roman Catholic, while 21 per cent, chiefly in the south, belong to the Albanian Orthodox Church. Primary education was compulsory under King Zog's rule but

not always enforced, owing to the lack of schools and teachers. Prior to the outbreak of hostilities between Italy and Greece in October 1940, state primary schools numbered 663, with 1,302 teachers, 38,988 boy pupils and 17,948 girl pupils, 18 intermediate schools for boys with 4,810 pupils and 256 teachers and 1 intermediate school for girls with 1,425 pupils and 37 teachers. There were also 22 infant schools with 40 women teachers, 1,229 boys and 1,206 girls.

Economic Conditions.—The annual budget of Albania under normal conditions was approximately $8,000,000. The income was hardly sufficient to meet the cost of administration and the rudimentary organization of public services. Economic development was possible only with the aid of foreign capital. The Albanian government tried to solve this need by entrusting, in March 1925, to an Italian financial group, the foundation of the Albanian National Bank and of the corporation for the economic development of Albania. In fact, until the outbreak of the Greek-Italian war in 1940, Rome appropriated funds for extensive economic improvements. The country is mountainous and frequently wild, making cultivation difficult. The Albanians are almost entirely dependent on their land, carrying on a characteristic combination of pastoral and agricultural occupations. Agriculture is in the first phase of development. The leading products are cheese, fish, olives, grains, eggs, skins, wool, tobacco, livestock and timber. Goats are reared, but the cattle are of poor breeds, yielding little. Oxen, with buffaloes in the swampy plains, are used for ploughing. Religion forbids the keeping of pigs, save among the Christian tribes. There are a few small domestic industries of which cotton manufacturing is the most important. Wool spinning and cigarette manufacturing are also carried on locally, the heavy wool native cloth being largely exported in peacetime. The country possesses important forests, the principal woods being walnut, chestnut, oak, pine, fir and beech. Little is known of the mineral wealth. Almost the whole strip of coastline, about 60 kilometers in width, shows indications of the presence of hydro-carbon. Asphalt and bitumen springs are worked at Selenitza, near Valona. Petroleum concessions were granted to the Anglo-Persian Oil Company, the Italian state, and the French Credit des Petroles. Coal seems to exist in the regions of Tepeleni, Orica and Tiranë, and there is iron in the basin of Fandi, near Scutari, and in the Tepeleni district.

Transportation.—The principal towns are connected by roads, some suitable for motor vehicles. In the mountain districts, however, communication is mostly by means of pack horses. The total length of roads at the end of 1941 was approximately 1,760 miles. The country's first railroad, between Durrës (Durazzo) and Elbasan, was begun in May 1940. Motorboats are used on Lake Ochrida and Lake Butrinto.

Principal Events.—To the accompaniment of a 21-gun salute and dancing and singing in the streets, the new Albanian government entered the liberated capital of Tirana on Dec. 2, 1944, on the 32d anniversary of the Albanian independence. Col. Gen. Enver Hoxha, who headed both the Partisan Army and the government as premier, pledged the establishment of a democratic form of government, private ownership of property, universal suffrage, national mobilization of labor to rebuild the devastated country, and punishment of war criminals. Discussing a recent statement by Greek Premier George Papandreou that Greece would seek a portion of southern Albania (Epirus) in postwar settlements, Hoxha declared flatly that Albania was ready to fight to protect her borders. This former professor of French also went on record as favoring a "close alliance" with Tito's Yugoslavia to which Albania was now bound by "ties of blood." But there was some underground opposition to Hoxha, demanding the return of King Zog from exile, who declared from London in January that he would approve creation of a regency if and when a proposal were made. In mid-December, Hoxha conferred at Tirana with a Soviet mission. The "Albanian Tito's" right-hand-man, Mehmet Shehu, at this time made it clear that he was not only anti-British but that he sympathized wholeheartedly with the Greek ELAS (National Popular Liberation Army); this attitude was further confirmed when Albanians, as well as Bulgarians, filtered into Greece to assist the ELAS faction and to form a free Macedonia. There were, on the other hand, many adherents of the ELAS cause who were at pains to explain the reports that Albanians (and Bulgarians) were entering Greece as part of a set propaganda scheme of the Greek government's purpose of blackening the ELAS name. Dr. Krok Kolaj, Albanian minister of justice, speaking for the Albanian national liberation organization movement (ANLA), promised in January to "punish all who have aided the foreign invader and attempted to obstruct our sacred war"; a special trial court was to be formed in Albanian prefectures or subprefectures, each court to include, in addition to one "regular career judge," two officers of the local ANLA council, an ANLA member, one member of the ANLA women's council and one delegate from the ANLA youth organization. In February, Don Lazar Shatoja, who had collaborated in the coup that overthrew King Zog and "later helped in charting Fascist plans to invade Albania," and Sulce Beg Bushati, the "most hated traitor" in his province who tried to mobilize troops for Italy in the war against Yugoslavia and who had "co-operated with the Gestapo and killed and robbed," were condemned as war criminals and shot in Tirana. In February, declaring that the meeting of the Big Three had been received "with great enthusiasm by the Albanian people," the Tirana radio said that in connection with the conference the "Albanian people raises its voice once again" asking that the government of Hoxha be recognized by the Allies. In April, Hoxha sent a letter to President Roosevelt, Prime Minister Churchill and Marshal Stalin, asking "on behalf of the government of democratic Albania" that the country be invited to participate in the San Francisco Conference. In the same month, the Athens radio charged the Albanians, most of whom are Mohammedans, with extensive persecution of the Orthodox Christian Greeks in the Koritza area of Albania adjacent to Greece. The broadcast claimed that "twenty-seven completely Christian villages were burned down and hundreds of inhabitants killed by the Turco-Albanians. Seven other Christian villages were also partly burned down and much of the Christian parts of twenty other villages were burned. The number killed is very considerable." On April 24, Dr. Laurence H. MacDaniels, who headed the agricultural division of the Albanian Commission of the United Nations Relief and Rehabilitation Administration, announced that the commission had been temporarily disbanded because of two principal "political difficulties": The UNRRA could operate only at the invitation of a recognized Albanian gov-

ernment, and the Partisan government of Hoxha was not so considered by the United States and Britain; and the Anglo-American military liaison organization that would have preceded the UNRRA's entry to help with distribution was "unacceptable to the Partisan government as so constituted." During the summer, the Greek sources kept up agitation for the incorporation of Northern Epirus into Greece, on both ethnological and moral grounds, "for the Epirotes themselves ardently desire such union with their Motherland." In July-August, the Athens newspapers published the text of the memorandum dealing with the "tragic" situation in Northern Epirus which the Foreign Affairs Committee submitted to the Greek government and a copy of which was sent to the Churchill government with an appeal that Epirus should be occupied by Allied troops, including Greek, pending a final decision by the Peace Conference on the fate of the region.

JOSEPH S. ROUCEK,
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ALBERTA. A province of western Canada, 255,285 square miles in area (of which 6,485 square miles are water). Over half of the total population (estimated at 816,000 in 1945) is of British descent, others include Germans, Ukrainians, Scandinavians, French, and Poles. The capital is Edmonton (pop. 93,817), and other cities include Calgary (88,904), Lethbridge (14,612), and Medicine Hat (10,571). Executive power is vested in a lieutenant governor appointed by the Dominion government (John Campbell Bowen, March 20, 1937) and a nine-member executive council (Cabinet) of the Legislative Assembly, which has a membership of 57; at the general election on Aug. 8, 1944, the Social Credit Party increased its majority to 51, Ernest Charles Manning continuing as premier. The province is represented in the Dominion Parliament by six senators and 17 members of the House of Commons. Provincial government totaled 2,852 in 1944, the 1945 amounted to $31,848,484, and expenditure was $25,962,684, giving a surplus of $5,885,800; the net general bonded debt stood at $138,821,432. Schools conducted by the provincial government totaled 2,852 in 1944, the number of pupils being 151,985. The government also maintained the University of Alberta, with a faculty of education for training teachers at Calgary and Edmonton, and two schools of agriculture.

Agriculture and the raising of livestock have long been Alberta's principal occupations. Wheat is the leading crop (105,700,000 bushels in 1944), and ranking next in importance are oats, barley, rye, mixed grains, and flaxseed. Livestock in 1944 comprised 1,742,800 cattle, 2,278,900 swine, 1,023,200 sheep, and 603,500 horses. Lumbering is conducted on a considerable scale in the province's 12,393,500 acres of forests.

Alberta excels all other Canadian provinces in its abundance of nonmetallic minerals. The province produces about 90 per cent of the Dominion's total yield of petroleum (8,788,726 barrels in 1944) and about 80 per cent of its natural gas consumption (37,392,000M cubic feet in 1944); more than 75 per cent of Canada's coal reserves are within her borders (7,427,433 tons mined in 1944), and the province's deposits of bituminous sands are the greatest in the world. Salt is produced at McMurray (another mine at Vermilion is awaiting development), and sand, gravel and clay at many places. Manufacturing industries, which have an annual production value of some $250,000,000, are of increasing importance. Calgary and Edmonton are the chief industrial centers. Foodstuffs are manufactured, as well as cement, glass, linseed oil, metal and wooden products, and textiles. The net value of all classes of production in 1944 was $521,428,820 ($438,314,954 in 1943).

Railroads within the province have an aggregate length of 5,818 miles, and there are more than 7,000 miles of highways of all classes, 3,000 miles of which are gravelled and 500 hard surfaced. Air transportation facilities are good, numerous airports having been constructed during the war.

ALCOHOLIC BEVERAGES. See DISTILLED SPIRITS.

ALCOHOLS. See CHEMISTRY.

ALDERNEY. See CHANNEL ISLANDS.

ALEUTIAN ISLANDS. A chain of about 80 small islands belonging to Alaska Territory, extending nearly 1,600 miles from east to west between 172° E. and 163° W. longitude; area, 6,391 square miles; pop. (census of 1939) 1,298. Furs and fish are plentiful. On some of the islands there are grassy valleys suitable for cattle raising, and for the growing of turnips, potatoes and other hardy vegetables. As a by-product of war, thousands of trees have been planted on the originally treeless islands where the largest native plants are willows that reach a height of 8 feet on Unalaska, the site of Dutch Harbor at the eastern end of the chain, and 6 feet on Attu, the westernmost island. During the four years that Lieut. Gen. Simon Bolivar Buckner, Jr., (q.v.) was commanding general of the Alaska Defense Command, and later in command of the Alaska Department, he encouraged tree planting, and just before leaving Alaska for the campaign in which he met his death, he set up a specific program for tree planting in the Aleutians. Varieties of spruce, mountain hemlock, northern black cottonwood, balsam poplar, white and Kenai birch, aspen, alder, and willows have been planted. Of some 11,000 trees planted by the army in 1942, perhaps 5,000 are left on Kodiak and Umnak; while of the 3,000 planted in 1943 and 1944, nearly 1,000 are still alive, exclusive of the 1944 fall plantings. Whether the Aleutians will respond to afforestation is problematical. Soil conditions are not too unfavorable, but there may be climatic bars to successful growth in the insufficiency of a growing season, lack of enough summer sunshine, and excessive winds. Dr. Aleš Hrdlička, the anthropologist, in *The Aleutian and Commander Islands and their Inhabitants* (1945), declares that analysis of evidence shows that two types of people inhabited the islands, the earliest arriving there about the beginning of the Christian era. These pre-Aleuts were not Eskimo but "derived from the paleo-Asiatic complex of people." He believes them to be an offshoot of one of the Tungus tribes of northeastern Asia. The modern Aleuts, of entirely different skull formation, moved into the islands from the American side about 400 or 500 years before the coming of the Russians. On June 3, 1942 Japanese warships bombed Dutch Harbor, causing 93 casualties; they also landed troops on Agattu, Kiska and Attu islands. United States Army and Navy forces attacked the invaders. On May 11, 1943, American troops landed on Attu and in the course of a bitterly

fought battle drove the enemy to Chichagof Harbor where they made their last stand, losing 2,350 killed and only 24 captured. Attu was liberated on May 31. American and Canadian troops landing on Kiska on August 15 found that the island had been evacuated. Thus ended the 15-month campaign with the Aleutians cleared of all enemy forces at a cost to Japan of 59 vessels including 29 warships.

ALEXANDER, Sir Harold Rupert Leofric George, British Army officer: b. County Tyrone, Northern Ireland, Dec. 10, 1891. As Supreme Allied Commander in the Mediterranean theater in the final months of the war with Germany, Field Marshal Alexander directed Allied operations on the Italian mainland. He replaced Field Marshal Sir Henry Maitland Wilson in that command in November 1944, and was at the same time designated field marshal. On July 31, 1945, he was appointed governor general of Canada, to succeed the Earl of Athlone.

Field Marshal Alexander is a veteran of action on several fronts in the Second World War. On Dunkerque's beaches on May 31, 1940, he assumed command of the remaining British troops and completed their evacuation on June 2. In February 1942, he assumed command on the Burma front two days before Rangoon fell to the Japanese. He was summoned to the Middle East the following August, to organize the British Eighth Army opposing Rommel's Afrika Korps. Subsequently, as General Eisenhower's deputy commander in chief and commander in chief of Allied Ground Forces, he directed the offensive in Tunisia, and was in large part responsible for conceiving the strategy by which Tunis and Bizerta fell to the Allies on May 7, 1943. He later helped map plans for the conquest of Sicily and served for a time as military governor of that Italian island. He also shared responsibility with General Eisenhower, Admiral Cunningham, and Air Marshal Tedder for planning the invasion of Italy, Sept. 3, 1943. He became Allied commander in chief in Italy in December 1943.

In the First World War, Field Marshal Alexander commanded the Irish Guards, and from 1919–20, served in Northern Russia with a battalion of the Baltic Landwehr.

ALGERIA. French territory in North Africa. The area is 847,500 square miles, and the population was estimated in 1940 to amount to 7,600,000. The census of 1936 gave a population of 7,234,684, of whom 6,247,432 were Moslem natives and 853,209 French. Northern Algeria is regarded as an integral part of France, and Southern Algeria is under a semimilitary organization (see below). The country was liberated from pro-Axis control following the Allied landings on the French North African coast on Nov. 7-8, 1942. It was then administered by Gen. Henri Honoré Giraud until June 3, 1943, when responsibility was assumed by the French Committee of National Liberation; after Gen. Charles de Gaulle's provisional government of the French Republic was established in Paris in September 1944, Algeria resumed its prewar status.

Climate and Geography.—Algeria contains three agricultural regions. The first is a rich coastal district, sometimes called the Tell zone, between the seacoast and the first range of hills known as the Tell Atlas, where cork and wine-growing are the chief economic pursuits. Second comes the high tableland zone between the Tell Atlas and the Saharan Atlas proper which produces the bulk of the cereal crops, such as wheat, barley and oats. The interior districts of this zone, bordering the desert, consist of great alfa-producing areas and extensive stock-raising tracts. Third is the desert portion where numerous oases produce large quantities of dates, an important article of export, as well as part of the daily diet of the natives.

The coastal region has a high humidity all year and a rainy season from November through March, the average annual rainfall being about 30 inches. South of the coastal mountains, the amount of rainfall decreases rapidly, the non-desert areas being a long and relatively narrow strip.

Minerals.—Mineral wealth is considerable. Two minerals which have been exploited to a significant degree are iron ore and natural phosphates. Iron ore occurs chiefly in the vicinity of Oran, and phosphate beds with a thickness of 4 meters are located near Sétif and Batna. Iron pyrites and gypsum are found extensively, and there are smaller deposits of antimony, copper, silver-lead ore, mercury, rock-salt and zinc ore. Petroleum has been produced on a small scale at Tlouanet, near Mascara. Insignificant quantities of lignite coal occur, and arsenic, diatomite and barite are found.

People and Cities. — Berbers (2,100,000 in 1936), the original inhabitants of Algeria, and Arabs (5,890,000) are of the Islamic faith. With few exceptions, all were subjects, with no political rights, until 1919, when monogamous farmers or proprietors who had fought in the First World War and could speak and write French were admitted to citizenship; in 1943 all persons having a speaking and reading knowledge of French were made citizens. In 1943, also, citizenship was restored to Jews, who had lost it in 1940. Besides French (853,209 in 1936), natives, and Jews (numbered with the French), there are Spanish (91,942), Italian (20,929) and Maltese (2,976) in Algeria.

About 22 per cent of the population is urban, concentrated in a few leading cities, mostly seaports along the Mediterranean coast. Algiers (pop., 1936, 252,321) is the capital and chief port. The city was the headquarters of the Allied forces during the North African campaign of 1943, and of de Gaulle until France was liberated in 1944. Because of its mild climate, Algiers is a favorite winter resort for Europeans. Oran (pop., 1936, 194,746) is an important port at the northwestern end of Algeria. Bone (Bona), one of the chief northeastern ports (pop., 1936, 83,275), has one of the best harbors in Algeria. Philippeville (pop., 1936, 64,857) serves as the port for the more populous city of Constantine. Several large cities are located inland, though near the coast. Among the more important are Constantine (pop., 1936, 106,830) and Sidi-bel-Abbes (pop., 51,094).

Religion and Education.—Not more than 10 per cent of the natives, virtually all of whom are Moslems, have even an elementary education. Primary schools for natives numbered 689 in 1938, with 76,859 pupils enrolled. At that time less than 200 students were enrolled at *médersas*, schools of higher education for natives at Algiers, Tlemçen and Constantine. With the exception of the natives and the Jews, most inhabitants of Algeria are Roman Catholics. Primary and higher primary schools for them numbered 1,224 and 30, respectively, having 159,725 and 9,386 pupils. There were six teacher-training schools (half of them for women teachers), with a combined enrolment of 484. The University of Algiers, with

2,248 students in 1938, has faculties of arts, law, medicine and pharmacy, and science; and affiliated schools of agriculture, commerce, fine arts, and hydrography.

Government.—The country has been organized into two divisions: Northern Algeria, consisting of the departments of Algiers, Oran and Constantine; and Southern Algeria, comprising Aïn Sefra, Ghardaïa, Touggourt, and the Saharan Oases. The departments of Northern Algeria elected 10 deputies and three senators to the Parliament of the Third Republic. Administration of Southern Algeria was conducted by military authorities under direction of a governor general, who represented the French government throughout the country. The non-Moslem services of justice, education, military and naval affairs, worship and the treasury were under appropriate ministers in France. The governor general was assisted by three advisory assemblies—a Council of Government (of high officials), a Financial Delegation (representative of French citizens and subjects) and a Superior Council (comprising *ex officio* and elected Europeans and natives). The functions of these bodies were suspended in 1941, when the country was subject to Vichy's corporative rule, but were restored by Giraud on March 17, 1943. The provisional government of the French Republic approved on Sept. 6, 1944, the appointment of Yves Chataigneau as governor general of Algeria. Ultimate responsibility for the internal and external security of Algeria, Morocco, and Tunisia had been vested in the commissioner of state, delegate general for North Africa, on August 28, 1944, but this new post was abolished when Gen. George Catroux, the first incumbent, was appointed to the ambassadorship at Moscow.

Finance.—The budget, comprising imposts of all types collected within Algeria and all civil disbursements, has been distinct from that of France since 1901. There is a separate budget for Southern Algeria. Normally expenditures for war and marine are borne by France and therefore excluded from the budget estimates, but the military tax, the government monopolies, and some special revenues are paid to France. While Algeria was subject to the Vichy regime, during 1940–42, no budgetary statistics were published. A consolidated budget for all of French North Africa was adopted in January 1943 by Gen. Henri Giraud, then high commissioner, the greater part of the expenditure being earmarked for military purposes. The revenue of Algeria for 1944 was estimated at 4,623,863,652 francs, and expenditure at 4,619;286,835 francs. After the landing of Allied troops in North Africa in 1942, the rate of exchange was fixed at 300 francs for one pound sterling; the next year the exchange was pegged at 200 francs to the pound.

Defense.—Prior to the collapse of France in June 1940, the Algerian military forces, together with those of Tunis, made up the 19th Army Corps of the French Army, consisting of 3 divisions, including 6 regiments of Zouaves, 6 regiments of cavalry, 3 groups of field and 1 of heavy artillery, 1 battalion of engineers, and 1 regiment of the flying corps, all of which were European troops. There were also 12 regiments of native Algerian tirailleurs, 6 regiments of spahis, (Arab cavalry), and the Foreign Legion of 4 regiments, recruited from foreigners of any nationality, but commanded largely by French officers. After the French-Italian armistice of June 24, 1940, the military forces of Algeria were demobilized. Immediately after the Allies had landed, late in 1942, the military forces of Algeria and other parts of French North Africa were reconstituted, with Gen. Henri Giraud as their first commander in chief, equipment being supplied under lend-lease by the United States. These French troops fought with distinction in the subsequent African and European campaigns against the Germans.

Agriculture, Stock and Fish.—Algeria is mainly an agricultural country, and its economic structure hinges on its crops. The country produces more dates than any other part of North Africa, while the vine is the most important crop tended by Europeans. For Algeria as a whole, however, cereal crops rank second to dates in economic value, large areas being under wheat, barley, oats, corn (maize) and rye. Legumes and white potatoes do well, and in districts where water is scarce, olives are cultivated on a considerable scale. Under normal conditions, large areas are under tobacco, flax, silk and cotton. Through 1940–42, while Algeria was subject to the Vichy regime, farmers were required to produce large quantities of oil-bearing plants for German use, including, besides the olive, castor, flax, sunflower and soybean. Citrus cultivation holds a large place in the agricultural economy, and almonds, figs, minor fruits and vegetables are also grown. The outlook for agricultural crops in 1945 was the worst faced by Algeria in half a century, this situation having been brought about by drought, poor cultivation, and inefficiency of labor on account of malnutrition. Uprooted vines have not been replanted, and shortage of sulphur caused great damage by mildew. Land under cereal crops in 1944 was 300,000 hectares less than in 1938, and exports of cereals were practically at a standstill; whereas they had amounted to 6,500,000 quintals until 1942, exports of cereals had decreased by February 1945 to 2,540,000 quintals. The wheat shortage in Algeria during 1944–45 was estimated to amount to 7,750,000 quintals, and the country was expected to produce in 1945 only 2,350,000 quintals of hard wheat and 820,000 quintals of soft-wheat. The shortage of barley and other cereals in 1944–45 was placed at 4,290,000 quintals, while the domestic crop of barley in 1945 would be only 1,555,000 quintals. The camel is still used for transportation by the natives in southern Algeria; and there are considerable numbers of sheep, and lesser quantities of asses, cattle, goats, horses and mules. Coastal waters of the country yield anchovies, sardines, shellfish, sprats, and tunny.

Production.—Wine-making and spirit-distilling are the most important industries in Algeria, and the growing of cereal crops holds next place. Cork-oak trees found concentrated in coastal forest areas yield a good grade of cork which gives employment to many persons. Other industries include the manufacture of tobacco and cigarettes, silk spinning and cotton ginning. Great numbers of the population are employed in mining, particularly at the deposits of gypsum, iron ore, iron pyrites, phosphate rock and rock-salt; and a relatively smaller number in the fisheries.

Foreign Trade.—Export trade was thrown into confusion after France surrendered in 1940, and no figures of foreign trade later than those for 1938 have become available. In that year principal exports had the following values (in millions of francs): wines, 2,900; cereals, 280; olive oil, 185; sheep, 142; spirits, 138; esparto grass, 75; and phosphate, 44. France was the principal market for most of these products. Algeria bought from the Republic, in turn, most of her imports in the first four of the following principal cate-

gories (expressed in millions of francs); machines and spare parts, 260; textiles, 250; sugar, 205; iron and steel, 112; coffee, 150; livestock, 110; cereals, 105; coal, 105; and petroleum, 77.

Communications.—In 1942 there were 2,734 miles of standard-gauge railway, of which 834 constituted the line from Oudjda, Morocco, to Ghardimaou, Tunisia, through Tlemçen, Oran, Algiers, Constantine, and Souk-Ahras. Branches connect with the ports and with the mines inland. The road system totals more than 40,000 miles, of which about 7,640 are improved. At the outbreak of the Second World War in 1939, construction was suspended on a second transversal highway across Algeria linking Tunisia with Morocco. A motor road also connects Algeria southwestward with Zinder and Niamey, in the Niger Colony of French West Africa. There are 12 ports with poor anchorages besides the good harbors at Algiers, Oran, Bone (Bona) and Philippeville. In 1938 a total of 12,441,000 tons was handled at all ports, but, on account of war conditions, this figure fell in 1940 to 6,277,000 tons. Before the war, air services from France reached Algeria and continued to Brazzaville, in the French Congo, and Elizabethville, in the Belgian Congo; and there were local air connections between all the territories of French North Africa.

Principal Events in 1945.—The fundamental racial and religious differences between Frenchmen and Moslems which had created strained relations throughout North Africa and the Levant became particularly acute in Algeria, where leaders of a movement termed Friends of the Manifest and of the illegal Algerian Popular Party aroused the people against the French administration. Religious issues between Jews and Moslems were superimposed upon these political difficulties, and were climaxed in 1945 by grave discontent because of the severe shortages in food due to crop failures. The result was a serious outbreak of rioting which commenced in the Constantine department on May 8 coincident with the celebration of V-E Day. Local authorities at Sétif and Guelma, chief centers of the disturbance, were unable to cope with the situation, and troops were called in. According to Adrien Tixier, minister of the interior, before the riots had been quelled 88 Frenchmen had been killed and 150 wounded, while 1,200 to 1,500 natives were killed and 2,400 arrested. The government shipped to Algeria large quantities of wheat sorely needed at home, and also diverted cargoes of cereals from the United States which had been intended for France. Tixier also promised the Algerians that the French administration of the country would be reorganized and that they should have a greater representation in the legislature. Municipal elections held on July 23 showed a great swing to the Left in all cities; at Algiers, although many natives boycotted the elections, the Conservative groups gained only five seats and the Moslems 15, while 31 candidates were elected by the Communists, Socialists, and the Resistance group. This result was considered a portent for the later alignment of parties in France itself.

WHEELER B. PRESTON,
Author and Publicist.

ALIENS. See IMMIGRATION, EMIGRATION AND NATURALIZATION.

ALLIED SHIPS LOST IN WAR. See NAVAL PROGRESS.

ALTRUSA INTERNATIONAL. An organized, classified group of more than 6,000 executive and professional women, in some 200 clubs throughout the United States, Canada, Mexico, and Puerto Rico, who work together to carry out Altrusa's program of service: to foster community, state, national, and international betterment. Membership is highly classified: one outstanding representative of each particular classification of business or profession is admitted, and membership is by invitation.

Taking its name from the word "altruism," the first Altrusa Club was organized in Nashville, Tenn., April 11, 1917. On August 21, 1917, Altrusa incorporated, thus becoming the first national organization of executive and professional women, either classified or unclassified. Vocational guidance was adopted as Altrusa's national policy at the Kalamazoo Convention, in April 1924. Publication of a national monthly magazine (*The Altrusan*, 10 issues a year), was begun in October 1924. The first permanent headquarters was opened in Chicago, August 1931. In June 1935, Altrusa became international.

The organization's objectives are: to cultivate friendly relationships, promote mutual understanding, and foster the solidarity of women who are actively engaged in business and the professions in an executive capacity; to be of service to young and mature women entering business and professional fields; to encourage participation in community and public affairs of a nonpartisan character; to do any and all things conducive to the betterment and ultimate welfare of women.

Altrusa International maintains a Grants-In-Aid Fund which provides gifts of money to women from the other Americas who wish to continue higher study in the United States. The fund was put into operation in 1945 and five women received grants.

The organization confers a Distinguished Service Award biennially. Madame Chiang Kai-shek was the recipient in 1943. In 1945, Anne O'Hare McCormick, member of the editorial staff, The New York *Times*, was chosen as the woman whose outstanding accomplishments earned her this recognition.

New international officers were elected by mail in 1945. The new international president of Altrusa, elected for the 1945–47 biennium is Miss Mamie D. Larsh, an Indianapolis, Ind., attorney who holds a number of important positions. Among her several offices are those of president and treasurer of the Champion Coal Corporation, and vice president, treasurer and director of the Midland Electric Coal Corporation.

LUCILLE HECHT,
Editor, International Altrusan Magazine.

ALUMINUM. Production of primary aluminum in 1944 totaled 776,446 short tons, a decline of 15.6 per cent from the all-time mark of 920,179 tons reached in 1943, according to the United States Bureau of Mines. The 1944 output was valued at $222,416,000. This compares with the 920,179 tons in 1943 valued at $265,380,000, and 521,106 tons in 1942 valued at $151,371,000. Apparent domestic consumption of primary aluminum in 1944 totaled an estimated 635,000 tons, as compared with 877,381 tons in 1943, and 588,969 tons in 1942. Of the primary and secondary aluminum consumed in the form of fabricated products (excluding imports), about 65 per cent went into aircraft construction in airframes, landing gear, engines, propellers, and fittings. More than half of the remainder was used in ship construction, tanks, trucks, ordnance, and other military uses. Only

a small portion of normal civilian requirements was met.

ALWIN, Karl Oskar, German conductor, pianist, and composer: b. Königsberg, Germany, April 15, 1891; d. Mexico City, Oct. 15, 1945. Conductor at the Vienna Staatsoper from 1920 to 1938, Dr. Alwin had been conducting the Opera Nacional in Mexico City since 1941. Educated in philosophy and music at the University of Berlin, Dr. Alwin studied with Humperdinck and Hugo Kaun, then in 1912 became a coach for the conductor, Karl Muck. He conducted in Halle, Posen, Düsseldorf, and was appointed first conductor of the Hamburg Opera House in 1917. In 1924 he conducted a *Ring* cycle and several Strauss operas at Covent Garden in London. He was known in the United States as accompanist on tours with the singer, Elisabeth Schumann, whom he married in 1920. They were divorced in 1936. In 1938 Dr. Alwin left Austria for the United States and for a time served as accompanist to the tenor, Jan Kiepura, on a nationwide concert tour. Later he went to Hollywood and in 1939 took the post of opera conductor with the Chicago Civic Opera Company, remaining there through 1940. During the four years he conducted in Mexico City, he made frequent trips through Central and South America and during his last journey, in 1945, he directed a season of opera at the Teatro Municipal in Rio de Janeiro. As a composer, Dr. Alwin is best known for his songs.

AMERICAN ACADEMY OF ARTS AND LETTERS. The American Academy of Arts and Letters was founded in 1904 by the National Institute of Arts and Letters. The membership of the academy is limited to 50, chosen only from the members of the institute.

On May 18, 1945, the academy and institute held their fourth joint public ceremonial at which new members of both organizations were inducted, medals awarded, and fifteen $1,000 "Arts and Letters Grants" given. These grants are awarded from time to time to nonmembers to further creative work in the arts. The Howells Medal was awarded to Booth Tarkington, for fiction; the academy's Stage Diction Medal to Eva LeGallienne; and the Award of Merit Medal, for poetry, together with a cash prize of $1,000, to W. H. Auden. Walter Lippman delivered the 24th address on the Evangeline Wilbour Blashfield Foundation, "American Destiny." An exhibition of sculpture by Paul Manship, recipient of the gold medal of the institute for 1945, together with the works of newly elected members and recipients of art grants, was opened in the art gallery and continued through June 29.

The annual meeting took place on November 2, at which time the following new members, Douglas S. Freeman, Robinson Jeffers, and Lee Laurie, were elected to fill vacancies. The academy occupies its own buildings at 633 West 155th Street and 632 West 156th Street, New York City.

FELICIA GEFFEN,
Assistant to the President, American Academy of Arts and Letters.

AMERICAN ACADEMY OF ARTS AND SCIENCES. The academy was founded in 1780, largely through the interest of John Adams in the encouragement of learning. A charter of incorporation was granted May 4, 1780. Membership was not at any time confined to Boston and its immediate vicinity, though the charter prescribed limits only for members resident in the commonwealth. Academy bylaws have, however, prescribed limits to the number of nonresident and of foreign honorary members. The first publications of the academy were issued as "memoirs" in 1785. The Rumford Fund was established by a gift from Count Rumford, July 12, 1796. As originally conceived, this fund provided for the award of a gold and a silver medal for important discoveries in the field of light and heat. Subsequently, provision has been made for awards in aid of research. By a bequest in the will of Francis Amory, a fund was established for prize awards each seven years beginning in 1941, for notable work in urinogenitary surgery and research. A fund to assist in publication of scientific papers was established in 1854 by Samuel Appleton of Boston. This fund has since been considerably increased by donations from fellows and friends of the academy.

The academy administers the income from two funds established to further research: the C. M. Warren Fund, established in 1891 to aid research in chemistry; the Permanent Science Fund, established in 1928 to aid work in any recognized scientific field.

The academy is limited to 800 fellows and 130 foreign honorary members, divided among four classes: mathematical and physical sciences, natural and physiological sciences, the social arts, and the humanities.

The officers of the academy for 1944–45 were: president, Howard Mumford Jones; treasurer, Horace S. Ford; corresponding secretary, Abbott Payson Usher; recording secretary, Hudson Hoaglund.

Three grants for research were made by the committee on the Permanent Science Fund. All income from the Rumford Fund and from the C. M. Warren Fund was reserved for use after the close of the war.

ABBOTT PAYSON USHER,
Corresponding Secretary.

AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE. On April 13 and 14, 1945, the American Academy of Political and Social Science held in Philadelphia its 49th annual meeting. In accordance with the custom of many years the two days were devoted to a discussion of current world conditions, the general topic being "Twentieth Century Agreements and Disagreements." The addresses delivered at the meeting appeared as the July 1945 issue of *The Annals* with the title "Our Muddled World."

The academy was organized about 60 years ago and now has some 11,500 members in all parts of the world. Meetings are held in Philadelphia. The first one in the fall of 1945 was on October 5 with the topic "The Place of Science in a Democracy."

The Annals is the bi-monthly journal of the academy, each issue being a symposium on a special topic.

As a part of its service the academy provided its members during 1945 with important documents including: "UNRRA; Organization, Aims and Progress," made available through the United Nations Relief and Rehabilitation Administration, March 1945; "Charter of the United Nations," made available through the United States Department of State, July 1945; "Science for Life or Death" by Brig. Gen. David Sarnoff, distributed through the courtesy of the Radio Corporation of America, September 1945.

Officers for the year were: president, Ernest Minor Patterson; secretary, J. P. Lichtenberger;

treasurer, Charles J. Rhoads; assistant secretary, Anne Elderton; assistant treasurer, Thomas S. Hopkins; vice presidents, Herbert Hoover, Carl Kelsey, C. A. Dykstra.

Headquarters: 3457 Walnut Street, Philadelphia 4, Pa.

ERNEST MINOR PATTERSON,
President, The American Academy of Political and Social Science.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. This association was organized in 1848 and incorporated in 1874 under the laws of the Commonwealth of Massachusetts. Its interests extend over the fields of the natural and the social sciences and its operations are organized under 15 sections: Mathematics (A), Physics (B), Chemistry (C), Astronomy (D), Geology and Geography (E), Zoological Sciences (F), Botanical Sciences (G), Anthropology (H), Psychology (I), Social and Economic Sciences (K), Historical and Philological Sciences (L), Engineering (M), Medical Sciences (N), Agriculture (O), and Education (Q). About 7,500 members of the association are affiliated with the section on medical sciences and about 5,200 with the section on chemistry. The total membership exceeds 27,000. In addition to its own sections, 190 independent scientific societies, having a total membership exceeding 500,000, are affiliated with the association and many of them join in its meetings. The association has three serial publications, the *A.A.A.S. Bulletin, Science* and *The Scientific Monthly*. Subscriptions for the *Bulletin* and for either *Science* or *The Scientific Monthly* are included in the annual membership dues of $5. *Science*, a weekly journal now in its 102d volume, has a circulation of over 20,000; *The Scientific Monthly*, now in its 61st volume, has a circulation of over 14,000. The association has published 24 technical volumes on such subjects as tuberculosis and leprosy, mental health, blood, heart and circulation, the genetics of pathogenic organisms, human malaria, aerobiology, the chemistry and physiology of hormones, surface chemistry, and cancer.

F. R. MOULTON,
Permanent Secretary, American Association for the Advancement of Science.

AMERICAN AUTOMOBILE ASSOCIATION. Founded in 1902, the AAA is the world's largest motor federation, with 650 clubs and branches throughout the United States, and 1,350,000 car-owning members. Activities of the organization are broadly defined as follows: (1) work for the improvement of motoring conditions generally; and (2) the rendering of personal services to the individual motorist so that the operation of his automobile may be easier and more pleasant, with aid for any motoring difficulties he encounters. One of the most important objectives of the AAA in the realm of public service is the betterment of highways.

Another field pioneered by the AAA is that of safety responsibility. Model legislation, drafted in 1928 and revised in 1944, has served as the basis for safety responsibility laws adopted by approximately three quarters of the states and eight of the nine Canadian provinces.

The AAA has been for years at the forefront in the battle to keep taxation of the motor vehicle on a fair and equitable basis. It has taken or shared leadership in 8 successful campaigns for state constitutional amendments prohibiting the diversion to other uses of money collected for highway purposes.

As part of a broad-gauge safety program the AAA has sponsored a School Safety Patrol system, which has a third-of-a-million school-age members in 3,500 communities.

Sponsorship of progressive legislation designed to promote uniformity of motor vehicle laws has been a long-time and continuing interest of the AAA. The organization has worked for adequate markings of highways, freedom of travel across state borders, elimination of abuses in the financing of automobiles and automobile accessories, provision for adequate parking facilities, and protection of roadsides through proper control measures. The curbing of speed-traps, fee-splitting by enforcement officials, and aid in preventing any abuses that might arise in the sale and distribution of petroleum products are other aspects of AAA activity in the interests of all motorists.

AAA Activities in 1944–45.—Since Pearl Harbor, the American Automobile Association has augmented its normal peacetime program, heretofore described, with many new services. These have included aid to the government in its struggle to keep transportation rolling, and help for the individual motorist in solving the problem of operating his car as efficiently and fully as possible in the face of restrictions on driving, frequent changes in the regulations governing car use, vehicle obsolescence, and shortages of replacement parts and garage manpower.

During the year a new phase of the AAA driver training program was developed, designed to meet the needs of returning disabled servicemen. This was worked out in co-operation with the Office of the Surgeon General of the United States Army. The program, which aids amputees in acquiring or reacquiring driving confidence and competence, had its inception at Forest Glen, Md., the Army Convalescent Hospital.

Special efforts were made under AAA leadership to effectuate repeal of the $5 Federal Use Tax on cars, widely regarded as a nuisance levy on the motorist, and having no legitimate place in the peacetime tax structure. The tax will be wiped from the statute books at the end of the fiscal year.

Officers of the Organization.—These are: president, H. J. Brunnier, San Francisco, Calif.; secretary, John L. Young, Cleveland, Ohio; treasurer, Corcoran Thom, Washington, D.C.; assistant treasurer, Frederick P. H. Siddons, Washington, D.C.

CLARENCE G. TAYLOR,
Department of Public Relations, American Automobile Association.

AMERICAN BANKERS ASSOCIATION. Organized by a group of bankers in 1875, this association is composed of 15,500 commercial banks, savings banks, and trust companies, of which approximately 11,500 are small banks serving small communities. It is supported by dues paid by member banks. It publishes *Banking*, a monthly magazine; *The Trust Bulletin*, monthly publication of its trust division; *A.I.B. Bulletin*, monthly publication of its educational section; and numerous booklets and manuals. Officers elected in 1945 were: president, Frank C. Rathje, chairman of the board and president of the Chicago City Bank and Trust Company; executive manager, Dr. Harold Stonier; secretary, Merle E. Selecman. Organization headquarters: 22 East 40th Street, New York City.

AMERICAN BIBLE SOCIETY. An organization founded in 1816, having as its sole object "to encourage a wider circulation of the Holy Scriptures without note or comment." There are

auxiliary societies in various parts of the country, and also 11 home agencies, which together cover every part of the United States. There are also 12 foreign agencies. The society has a total membership of over 10,000. During 1944 (the last year of record) it distributed a total of 12,172,139 volumes of Scripture, in many languages and dialects, including braille. Between July 1, 1940, and Sept. 30, 1945, the society issued a total of 8,576,924 Bibles and Testaments for the armed forces; 1,700,301 volumes in 40 different languages for prisoners of war on both the Allied and Axis sides; and 695,359 volumes for the liberated areas, 355,352 since July 1, 1945. A total of 480,997 volumes were distributed among German and Japanese prisoners of war between July 1 and Sept. 30, 1945.

Officers for 1945 were: president, Daniel Burke, LL.D.; executive secretary, the Rev. Dr. Eric M. North, Ph.D.; recording secretary, Francis C. Stifler. Organization headquarters: Bible House, Park Avenue and 57th Street, New York 22.

AMERICAN COLLEGE OF SURGEONS. This society, organized in 1913, had, at the close of 1945, more than 14,500 members, including fellows and honorary fellows. Its primary object is to elevate the standard of surgery. Therefore, admission to fellowship is based on merit only. The history of the organization and its major activities are given in detail in preceding issues of THE AMERICANA ANNUAL.

Hospital standardization is a subject in which the college has manifested great interest, and, according to its latest report, 3,181 or 80.8 per cent of the hospitals in the country with 25 beds or over have been fully or conditionally approved; 40.2 per cent of the hospitals having from 25 to 49 beds have been approved; 70.3 per cent of those having from 50 to 99 beds have been approved; 93.1 per cent of those having 100 or more beds have been approved; and all government hospitals have been unqualifiedly approved.

A department of graduate training in surgery has been organized to render assistance to individuals seeking training in surgery, especially those whose training has been interrupted by service with the armed forces. Definite requirements have been established by the college. There are 250 hospitals which are operating acceptable plans, and 500 additional selected hospitals are now being studied by the college from the standpoint of their ability to provide adequate graduate training in surgery and the surgical specialties. As a guide to the trainees, the college has prepared a volume that lists all of the hospitals and clinics approved to the date of publication for graduate training in surgery and the surgical specialties in the United States and Canada. The college is pledged to give every possible aid to the returning medical officer who desires to complete his training which was interrupted by his military service.

The college owns property valued at over $1,750,000, with headquarters at 40 East Erie Street, Chicago 11, Ill. Present officers are: president, W. Edward Gallie, Toronto, Ontario; first vice president, Clarence G. Toland, Los Angeles, Calif.; second vice president, Albert C. Furstenberg, Ann Arbor, Mich.; secretary-treasurer, Dallas B. Phemister, Chicago, Ill. Officers-elect: president, Irvin Abell, Louisville, Ky; first vice president, Leland S. McKittrick, Boston, Mass.; second vice president, F. Phinizy Calhoun, Atlanta, Ga. Dr. Franklin H. Martin, founder of the college in 1913, was its director-general from that time until his death, March 7, 1935.

The executive committee is composed of Drs. Irvin Abell, chairman; Arthur W. Allen, Frederick A. Coller, John R. Fraser, Harry S. Gradle, Howard C. Naffziger, Dallas B. Phemister, and W. Edward Gallie, ex officio.

The administrative board is comprised of the following: Malcolm T. MacEachern, associate director, chairman; Bowman C. Crowell, associate director, vice chairman; E. W. Williamson, assistant director; Miss Eleanor K. Grimm, secretary to the board of regents, secretary; Edward G. Sandrok, comptroller.

The administrative assistants are: E. W. Williamson, assistant director; Maj. Gen. Charles R. Reynolds, M.D., U.S.A. (retired), consultant in graduate training in surgery; George H. Miller, director of educational activities; Paul S. Ferguson, director of surveys, graduate training in surgery; G. R. Hess, assistant, division of medical service in industry; Miss L. Margueriete Prime, librarian and director of literary research; Miss Laura G. Jackson, director of public relations.

ELEANOR K. GRIMM,
Secretary, Board of Regents, American College of Surgeons.

AMERICAN DENTAL ASSOCIATION, The. Founded in August 1859 at Niagara Falls, N.Y., it merged in 1897 with the Southern Dental Association formed in 1869 (as a result of the Civil War) to form the National Dental Association. In 1922, it adopted its original name, The American Dental Association.

The objectives of the association are to cultivate and promote the art and science of dentistry; to conduct or provide for dental and oral research; to improve the professional character and education of dentists; to guard the interests of the public and the dentist through dental legislation; to educate the public in matters of dental health and to represent the common interests of the members of the dental profession.

The association is governed by a democratically elected House of Delegates. Its business is transacted by its board of trustees, officers, bureaus, committees and councils. Over 60,000 of America's 70,000 dentists belong to the association.

During its 1944–45 fiscal year, through its Council on Dental Education, it completed a five-year survey of the 39 dental schools in the United States and published a list of approved and provisionally approved dental teaching institutions. Through its Council on Dental Health and Committee on Economics, the association continues its study of dental needs, methods of practice, and dental health programs. It prepared plans for, and recommended the establishment of, experimental prepayment dental programs. It established basic principles for the guidance of component dental societies in the establishment of dental programs for low income groups. It sponsored two bills in Congress, one of which would provide funds and facilities for dental research, the other would provide grants-in-aid to states for dental service for children. It assisted in the successful termination of the war by its contribution of personnel, facilities and funds. It increased its public health educational activities by greater use of the radio, press, motion pictures and other media.

The association discontinued its annual conventions for the duration. Its House of Dele-

gates held a business meeting in Chicago in October 1944. No business meeting was held in 1945. Consequently, its last year's officers will hold office until the next House of Delegates meeting in 1946. Its officers are: president, Dr. Walter H. Scherer; president elect, Dr. Sterling V. Mead; 1st vice president, Dr. Herbert E. King; 2d vice president, Dr. W. I. McNeil; 3d vice president, Dr. E. M. Clifford; secretary, Dr. Harry B. Pinney; treasurer, Dr. Roscoe H. Volland.

LON W. MORREY,
Director, Bureau of Public Relations, American Dental Association.

AMERICAN FEDERATION OF LABOR. Precedents which had been established in previous war years were followed strictly by the American Federation of Labor during the months of war in 1945. At the same time, however, the federation persistently pressed for adequate advance postwar planning on the part of the government in order to avert widespread unemployment and attendant loss of purchasing power when the transition period should be at hand.

With the dramatic and sudden closing of the war, the executive council of the federation immediately announced a program of postwar steps which labor regards as immediately necessary in order to effectuate a speedy and orderly reconversion. This program includes provisions for the return of prewar rights and privileges which were voluntarily relinquished in the interest of the war effort, such as the restoration of free collective bargaining; end of war-time controls over labor and industry; increased wages, etc. In its official declaration made on the announcement of the termination of hostilities, the executive council of the American Federation of Labor said in part: "For its own part the American Federation of Labor believes that organized labor has an important contribution to make for the postwar recovery program . . . . America still has a vitally important job to do—to win the peace."

The federation's legislative program for the immediate future calls for enactment of the Kilgore Bill providing broader unemployment compensation provisions; the enactment of the Murray-Wagner Full Employment Bill; a postwar housing bill creating millions of new jobs over a 10-year period; a law lifting minimum wage levels; and the Wagner-Murray-Dingell Social Security Bill broadening coverage under the law and expanding its services.

The American Federation of Labor is not a political organization—it does not seek to control the government or to have the government control the trade unions. It advocates labor co-operation along trade union lines in the international field.

The federation is the official representative of the American workers in the international labor field. In recognition of this fact, the federation is accorded the privilege of naming the workers delegate to the International Labor Organization. The federation seeks to further the establishment of free trade unions throughout the world, both in the interest of better working and living conditions for the wage earners, and to combat the rising tide of communistic and other revolutionary philosophies and theories among the workers of the world.

The federation is unalterably opposed to government-controlled, or communist-controlled associations of workers and has steadfastly refused to participate in international conferences which accorded representation to such organizations. It has likewise refused to become identified with movements which afford representation to organizations which aim to disrupt or divide established national trade union movements.

The American Federation of Labor entered the postwar period firm in its conviction that the future prosperity of America depends upon the success of our free economic system—a system of free enterprise and free association of workers, and release from wartime government controls.

The American Federation of Labor had a paid-up membership in July 1945 of 6,946,218. Its resident officers are William Green, president, and George Meany, secretary-treasurer, with headquarters in the A. F. of L. Building, Washington, D.C.

WILLIAM GREEN,
President, American Federation of Labor.

AMERICAN GEOGRAPHICAL SOCIETY. Oldest geographical society in the United States, founded in 1852 "to collect and disseminate geographical information by discussion, lectures, and publications; to establish in the chief city of the United States a place where may be obtained accurate information concerning every part of the globe; and to encourage such exploring expeditions as seem likely to result in valuable discoveries in geography and related sciences."

The society has taken a leading part in the advancement of geographical research. It issues two periodical publications—a quarterly journal, *The Geographical Review*, and a monthly bibliography of current geographical literature—and has edited and published some 60 books in several special series. Most recent among the latter are (1) *Mirror for Americans: Likeness of the Eastern Seaboard, 1810*, by Prof. Ralph H. Brown, a scholarly reconstruction of the geographical aspects of the eastern United States in Thomas Jefferson's time; (2) *Japan: A Geographical View*, by Prof. Guy-Harold Smith and Dr. Dorothy Good, a factual analysis of Japan's geographical position, with its strategic and economic implications and (3) *Pioneer Settlement in the Asiatic Tropics: Studies in Land Utilization and Agricultural Colonization*, by Dr. Karl J. Pelzer, dealing with the background and operations of the agricultural settlements sponsored by the Netherlands Indies and Philippine governments in the years before the war.

For 24 years the society has been engaged upon the production of a map of Latin America which conforms essentially in style and standards with the "International Map of the World on the Scale of 1:1,000,000." The 107th and last sheet of this map has now been completed. The society has issued a set of alphabetical indexes, by countries, to the location of all of the 200,000 or more names on the map, and during 1944 issued a civil divisions base map of Latin America in three sheets (1:5,000,000).

The advent of the airplane has brought revolutionary changes in exploratory surveying methods. The society has for many years been engaged in research in the application of air photography to map production. Studies of map projections and other aspects of mathematical geography are also being conducted. A map on an azimuthal equidistant projection showing true directions and distances from New York City was prepared in the summer of 1944 at the request of the Port of New York Authority and has been published. A large part of the society's activity during the war years was devoted to work for the departments of State and of War. Some eighty projects of varying magnitude have been carried

out for the Department of State since 1942, when the society's research and cartographic facilities were placed at its disposal. In May 1944 a conference of medical men and geographers was held to discuss an atlas of diseases which the society proposes to produce with the collaboration of medical scientists. As a pilot project in this connection an investigation is being made of the geographical distribution of fluorine in the water supplies of the United States.

The society's collection of geographical books and maps, one of the largest of its kind, has been placed unreservedly at the service of many different government agencies by whom it has been extensively used during the past four years. A regular program of six lectures is given each winter. The society awards four gold medals in recognition of particularly distinguished work in exploration or geographical research.

Officers and professional staff: president, Roland L. Redmond; vice presidents: H. Stuart Hotchkiss, William A. Rockefeller, Frederic C. Walcott; domestic and foreign corresponding secretary, Robert Cushman Murphy; recording secretary, Carl C. Shippee; treasurer, R. McAllister Lloyd; director, John K. Wright; editor of *The Geographical Review*, G. M. Wrigley; librarian, Nordis Felland; map curator, Ena L. Yonge; Hispanic American research, C. B. Hitchcock, R. R. Platt; survey and maps, O. M. Miller; exploration and field research, Walter A. Wood (on leave of absence in U.S. Army).

JOHN K. WRIGHT,
Director, American Geographical Society.

AMERICAN HISTORICAL ASSOCIATION. Founded in 1884 and incorporated by act of Congress in 1899, it publishes an *Annual Report* (usually in two volumes, and containing the *Proceedings*); *The American Historical Review*, a quarterly; and in co-operation with the National Council for Social Studies, *Social Education*. The membership of the association numbers 3,628. The 1944 prize awards were: the Herbert Baxter Adams Prize (without stipend), to R. H. Fisher for his study, *The Russian Fur Trade, 1550-1700;* the John H. Dunning Prize of $100 to Lieut. Elting E. Morison, U.S.N.R., for his volume, *Admiral Sims and the Modern American Navy*. The John H. Dunning Prize Committee also gave honorable mention to Charles L. Mowat, *East Florida as a British Province, 1763–1784* (early American history); Lieut. Jeter A. Iseley, U.S.N.R., *Horace Greeley and the New York Tribune* (national political history); and Richard A. Hofstadter, *Social Darwinism* (history of thought).

Officers of the association for 1945 were: president, Carleton J. H. Hayes, Columbia University; vice president, Sidney B. Fay, Harvard University; treasurer, Solon J. Buck, Washington, D.C.; executive secretary and editor, Guy Stanton Ford, Library of Congress Annex; assistant secretary-treasurer, Patty W. Washington, same address. Headquarters: Study Room 274, Library of Congress Annex, Washington 25, D.C.

AMERICAN INDIAN. See INDIAN AFFAIRS; MUSEUM OF THE AMERICAN INDIAN.

AMERICAN LEGION, The. An organization of honorably discharged veterans, male or female, of the First and Second World wars. It was originally chartered by Congress in 1919 as an association of veterans of the First World War; it became a two-war organization on Oct. 29, 1942, when President Roosevelt signed an act making veterans of the Second World War eligible for membership. As of July 25, 1945, the membership totaled 1,618,446, enrolled in 58 departments and more than 12,000 posts. It was stated that up to June 30, 1945, more than 500,000 veterans of the Second World War had affiliated themselves with the American Legion, making it the largest Second World War organization as well as the largest First World War organization. Membership dues vary according to posts with an average of about $3 to $5 a year. The organization publishes two monthly magazines—*The American Legion Magazine* and *The National Legionnaire*. Officers on July 30, 1945, included Edward N. Scheiberling, Albany, N.Y., national commander; and Donald G. Glascoff, Indianapolis, Ind., national adjutant. Headquarters: 777 North Meridian Street, Indianapolis, Ind.

AMERICAN LIBRARY ASSOCIATION (A.L.A.). Organized Oct. 6, 1876, in Philadelphia, it is the official association of librarians, library trustees, and others interested in libraries in the United States and Canada, although its membership, which is open to all persons and institutions, is drawn from all continents. In 1945 the A.L.A. membership numbered over 14,000. Affiliations or relations are maintained with other library groups and numerous organizations, societies and institutions. While the association's main objective is complete and adequate library coverage for the United States and Canada, especially in rural areas without library service, since the beginning of the Second World War it has devoted its efforts to wartime tasks and plans for the postwar period. Over 600 volunteer workers serve on approximately 80 committees in carrying on the work of the association, in conjunction with its officers and a staff of 87. Carl H. Milam is executive secretary. Headquarters of the association, established in 1909, are located at 520 N. Michigan Ave., Chicago 11. During 1945, the association purchased an historic Chicago mansion at 50 East Huron Street, which will become its headquarters as soon as remodeling is completed.

The A.L.A. International Relations Office, located in the Library of Congress Annex, Washington, D.C., is under the direction of Harry M. Lydenberg. A library information bureau in Washington, financed from funds contributed by librarians and friends of libraries, and operated by the association was opened in October 1945 at 1709 M St., NW, Washington, D.C. Paul Howard directs activities of this office.

Conferences.—The usual summer and winter conferences have not been held since 1942 because of the war and transportation difficulties, but a mid-winter meeting is planned for January 1946 and an annual conference in Toronto in the summer of 1946 is tentatively scheduled. At the conclusion of an officers' meeting on June 22, 1945, the following officers were inaugurated: president, Ralph A. Ulveling, Public Library, Detroit; first vice president and president-elect, Mary U. Rothrock, Tennessee Valley Authority, Knoxville; second vice president, Emerson Greenaway, Enoch Pratt Free Library, Baltimore; and treasurer, Rudolph H. Gjelsness, University of Michigan, Ann Arbor.

At the same time the annual citations for distinguished service as library trustees were presented to M. M. Harris, president of the San Antonio (Texas) Public Library Board, and Mrs. Albert W. Errett, president of the board of directors of the Public Library, Kewanee, Ill. A third citation was awarded posthumously to Charles Whedbee, former trustee of the North Carolina

Library Commission, Hartford, who was chosen in 1942 but wished to defer receiving his citation until he could attend an A.L.A. conference.

The 24th annual Newbery Medal, for the outstanding contribution to children's literature, was conferred on Robert Lawson for *Rabbit Hill*, and the 9th annual Caldecott Award, for the most distinguished picture book, to Elizabeth Orton Jones for the illustrations of Rachel Field's *Prayer for a Child*. Both medals were presented on June 9, 1945, in New York City.

Halsey W. Wilson, president of H. W. Wilson Company, was elected an honorary member of the A.L.A. by the council because of his "contribution to library efficiency and to every field where books and periodicals are used." Since its founding the A.L.A. has conferred honorary memberships on only 27 persons.

Income.—The association's endowment is approximately $2,110,000. The income in 1944–45 (excluding cash balance of $197,000 on Sept. 1, 1944) was about $1,133,800. Approximately $223,700 was derived from membership dues, sales of publications, advertising subscriptions, etc., and was used primarily for membership and publication activities. Publications are sold practically at cost as this aspect of the association's activities are conducted not for profit but in the interest of library progress. The sum of $76,500 was income from endowment funds; $188,000 was in payment of group retirement annuity premiums; and $592,000 came from outside sources in the form of grants or payments for specific purposes.

Publications.—Some 20 new projects were begun, over 100 were considered, and 10 titles were published. The publishing program, which had not paid its own costs for several years, wiped out its deficit. Pamphlets and books on library work, book-buying lists for public, school and college libraries, and a growing list of indexes are published by the association, in addition to its periodicals, the *A.L.A. Bulletin*, the *Booklist, Subscription Books Bulletin, College and Research Libraries*, and the *Hospital Book Guide*. Among the 1945 publications were: *National Medical Library, School Libraries for Today and Tomorrow, Librarian and the Teacher of Home Economics, Catalogers' and Classifiers' Yearbook No. 11, Patrons Are People, Activity Book No. Two, Buying List of Books for Small Libraries*, 7th. ed., and *Books Published in the United States, 1939–43*.

During the fall of 1945 the association began the distribution of phonograph recordings of classic children's stories told by Mrs. Gudrun Thorne-Thomsen. This project is in co-operation with the A.L.A. Division of Libraries for Children and Young People, which is interested in the preservation of fine examples of the storyteller's art. See also *Library Progress*.

MILDRED OTHMER PETERSON,
American Library Association.

AMERICAN METEOROLOGICAL SOCIETY. See METEOROLOGICAL SOCIETY, AMERICAN.

AMERICAN MUSEUM OF NATURAL HISTORY, The. Several organizational changes were made to achieve a more effective and coherent administration of the large biologic units of the museum collections. The two departments of Fishes and Invertebrates were combined as one Department of Fishes and Aquatic Biology, under the chairmanship of Dr. Charles M. Breder, Jr. All activities in the geological and paleontological sciences were united and co-ordinated into a single Department of Geology and Paleontology, with Dr. G. G. Simpson as chairman.

With a special grant from the Viking Fund the organization of the Institute of Human Morphology, a new project in the Department of Anthropology, was begun. Dr. Erwin K. Ackerknecht, formerly research fellow at the Institute of the History of Medicine at Johns Hopkins University and recently appointed assistant curator in this museum, is in immediate charge under the direction of Dr. H. L. Shapiro, departmental chairman. The plan is to make available to research students, biologists, physical anthropologists, physicians, and X-ray specialists comprehensive collections of skeletal material for the study of the structure and form of the human skeleton. Further, such skeletal archives (osteology, wet specimens, various types of sections) are to be classified according to age, sex, normal and abnormal development, with accompanying files of X-rays, and as the collection accumulates, a series for exhibition will be selected as a nucleus for a museum of human morphology.

The post of chairman and curator of the Hayden Planetarium was filled September 1 with the appointment of Gordon A. Atwater.

Several individuals of the naval personnel stationed in the Aleutian Islands collected and presented archaeological material revealed by deep cuttings made in the course of military construction. Dr. Helge Larsen, associate curator of archaeology, excavated at several sites to test the chronology of this area. This field trip is financed by the Viking Fund and was made possible through the courtesy of the military and naval authorities. Preliminary reports from Dr. Larsen assure us of some success. He sectioned and sampled some of the deepest refuse heaps, which indicate the presence of two successive cultures possibly related to the important Ipiutak culture at Point Hope, Alaska.

Studies on the thermal requirements of reptiles were continued in Arizona by Mr. C. M. Bogert, chairman of the Department of Reptiles and Amphibians, who spent a month assembling field data at the Boyce Thompson Southwestern Arboretum near Superior. With the information already gained by experiments in Florida in 1944 it will be possible to compare the requirements of lizards in humid regions with those living in a desert. Some of the earlier results were published in *A Preliminary Study of the Thermal Requirements of Desert Reptiles* by Mr. Bogert and Dr. Raymond B. Cowles of the University of California, Los Angeles, and a record of the Florida experiments on temperature tolerances of the American alligator was prepared with these two authors by Dr. E. H. Colbert. Dr. Colbert, the curator of fossil amphibians, reptiles, and fishes, carried on a reconnaissance also in Arizona, jointly with a University of California party, and located a rich fossil reptile deposit, to be worked in the future. Fossil shells and other marine life were collected by Dr. Otto Haas in Indiana. Dr. Frederick H. Pough made an extensive field study of mineral occurrences in Brazil, continued his study of the new volcano Parícutin in Mexico, collected interesting minerals in New Mexico and Colorado, and completed his work on a remarkable new mineral, brazilianite.

The end of the war permits definite planning for more active field work. The Vernay Nyasaland Expedition (sponsored by the Department of Mammals and participated in also by the Kaffrarian Museum, King William's Town, South Africa), the first large-scale expedition since 1939, plans to be in Africa by May, 1946, and to make large collections of mammals and plant material.

A detailed report of its activities will appear in 1946.

The Department of Birds also hopes that an expedition can be sent into the Pacific to finish the work of the earlier Whitney South Sea Expedition in collecting birds and accessories to complete the five final habitat groups in the Whitney Memorial Hall. In 1945 four decorative exhibits of birds-of-paradise and other colorful species of Pacific birds were installed in this hall.

Interest in the entire Pacific area is reflected in an exhibit of the more spectacular insects collected and donated by members of the armed forces from many remote Pacific stations. A pamphlet prepared by the Department of Insects and Spiders available to these men stimulated and assisted their collecting. Dr. C. H. Curran, associate curator, prepared a handbook on *Insects of the Pacific World* for the armed services and laymen. The insect exhibits were further enriched by a fine series of color sketches by Miss Alice Gray of the successive stages of development of the saturnid moth, *Automeris io,* from egg to adult. An unusually fine collection of North American moths, over 12,000 specimens, collected by Viola H. dos Passos during her lifetime, was presented by her husband, Research Associate C. F. dos Passos.

Mounted skeletons of *Thomashuxleya,* the oldest mammal skeleton from South America, and of *Notharctus,* the oldest fossil skeleton of a primate, both prepared by Charles Lang, chief preparator in geology and paleontology, were placed on exhibition.

The list of publications in 1945 is large and important and includes: a monograph on the family Anatidae (ducks, geese, and swans) by Captain Jean Delacour, research associate, and Dr. Ernst Mayr, curator of the Whitney-Rothschild Collections, Department of Birds, which presents a large new classification of a family that has always presented many taxonomic difficulties; a large monograph on *North and South American Ascidians* (sea squirts) by Associate Curator Emeritus Willard G. Van Name; *The Principles of Classification and a Classification of Mammals* by Dr. G. G. Simpson, which, as its title shows, is a complete classification, with extensive explanatory and historical notes and bibliography, of all the higher groups of mammals and all well-defined genera; *Tempo and Mode in Evolution,* also by Dr. Simpson; *The Dinosaur Book* by Dr. E. H. Colbert, an attractive handbook for popular use; *A Preliminary Analysis of the Herpetofauna of Sonora* by Mr. Bogert and Dr. James A. Oliver; *Supraspecific Groups of the Pelecypod Family Corbulidae* (fossil mollusks) by Dr. H. E. Vokes; *Archaeology of the Hopedale Area* by Assistant Curator Junius B. Bird; *Costa Rican Stonework* by J. Alden Mason, a beautifully illustrated report on the Minor C. Keith collection; *Giant Early Man from Java and South China* by Franz Weidenreich; and numerous other reports and technical and popular articles, shorter but not less in value.

The Department of Animal Behavior included in its year's work field and laboratory investigations of the instinctive reactions of several vertebrate and invertebrate species. A six-month field study in southern parts of Mexico yielded valuable new information regarding the migratory habits of the army ant and the relation of the colony's raiding behavior to the queen's reproductive cycle. Experiments on the African mouth-breeder fish showed that the female's egg-laying rhythm is controlled by her sight of the male. No actual contact is necessary, but if the female is to construct a nest and deposit eggs she must be able to see another fish of her species. Presumably the control is exerted through the visual nerves to the pituitary gland and thence to the sex glands. Investigations of the importance of hormones to courtship and mating in various mammalian species have revealed several significant points concerning the evolution of human behavior. It is becoming more and more apparent that in the course of evolution the higher brain centers have gained increasing importance in reproductive activity, while the regulatory function of sex hormones has correspondingly decreased.

The Department of Education laid emphasis upon the following: the completion (by March 1945) of the specialized work for the army, navy, and marine corps in landfall recognition techniques; the organization of a special division for guest services; the incorporation in the department of the division of "Man and Nature Publications" (for popular distribution and sale), with a consequent expansion both in capital outlay and additional activity; the development of a greatly expanded division of special exhibition with emphasis on special showings of current interest.

RUTH TYLER,
Editor, Scientific Publications, The American Museum of Natural History.

AMERICAN RED CROSS. See RED CROSS, AMERICAN.

AMERICAN SAMOAN ISLANDS. See SAMOAN ISLANDS.

AMERICAN SOCIETY OF COMPOSERS, AUTHORS AND PUBLISHERS (ASCAP). See PERFORMING RIGHT SOCIETIES.

AMPHIBIOUS WARFARE. A term that came into common usage during the Second World War to describe combined land, sea and air operations. It was not however coined during the Second World War, as it had been used in naval and military parlance for many years before. In the past it referred only to combined land and sea operations. With the advent of air armaments, a new word might well have been adopted to connote the combined operations of all three types of forces, but the classical term has been retained and is now usually understood to include the employment of air power in addition to sea and land power. The mission of an amphibious operation may be to gain a foothold on an enemy-held shore in order to make it possible to come to grips with the enemy's ground forces, for example the invasion of France through the Normandy beachhead, or it may be to capture an island or other point as a step in a more extensive military-naval campaign, for example the capture of Okinawa on the way to Japan.

Proficiency in amphibious warfare has been throughout history a prerequisite to the growth of insular nations, such as Greece and England. The British Empire may well be said to have its roots in the genius of the English speaking people for amphibious warfare and of the recognition by British political leaders through the centuries of the importance of sea power. All warfare of this character to be successful involves the possession of sea power, but sea power, while essential, is not enough in itself to insure the success of amphibious enterprises, just as air power, while essential, is not enough in itself to win land battles. Although Great Britain has, in the main, throughout her history been highly successful in amphibious warfare, she has also met with a number of conspicuous failures in this field. The amphibious

operation which by itself had perhaps the greatest influence on the growth of the British Empire was the capture of Quebec by General Wolfe in 1759. The capture of Quebec led to the inclusion of Canada in the British Empire where it has remained since and still is the most important dominion in the British Commonwealth of Nations. Against this success during that era may be cited the failure of the British Fleet to come to the support of General Cornwallis at Yorktown in 1781, due to the fact that Admiral deGrasse with the French Fleet dominated the entrance to Chesapeake Bay for the short period of time necessary for Washington on land to force the surrender of Cornwallis. The failure of this amphibious operation on the part of the British led to the recognition by England of the independence of the American colonies. Both Quebec and Yorktown strikingly illustrate the principle that command of the sea is necessary to the success of such operations. The naval forces at Quebec consisting of some 140 ships provided control of the St. Lawrence to the British from the beginning of the operation early in June 1759 until its successful termination on the Plains of Abraham on September 13 of that year. The naval forces were under the command of Admiral Saunders. The heroic and spectacular death of General Wolfe during the battle of Quebec so over-shadowed every other aspect of this undertaking that only students of history know the name of the naval commander or realize the magnitude of the role which the sea forces played in the capture of Quebec. In more recent times, up to the Second World War, extensive amphibious operations were infrequent. Napoleon assembled a large fleet and a large army to invade England, but never undertook the invasion because of the difficulties involved in such an operation, and because of his inability to gain command of the sea. One of the most serious setbacks to the cause of the Allies in the First World War was the failure of the amphibious attack on Turkey at Gallipoli. The elaborately prepared raid on Dieppe during the Second World War failed because the techniques for aiding the offensive, which later came into use, had not yet been perfected.

Amphibious warfare played a very large part in the Second World War. The extent to which the four principal powers of the United Nations engaged in this type of warfare differed, however, very greatly. The warfare carried on by the United States during the Second World War was almost wholly amphibious in character especially in the Pacific. In the case of Great Britain, it became amphibious after the British Army was driven out of France at Dunkerque and remained so until France was reoccupied. On the other hand, amphibious operations played practically no part in the war carried on by Russia and by China against the Axis powers. The reasons for this require no elaboration. In the case of both the United States and Great Britain, it was necessary to invade enemy-held territory in order to get at the enemy's ground forces. This involved landing operations on stubbornly defended beaches. Russia fought a purely land and air war, at first defensive in character and later offensive. China's preoccupation throughout the war was to resist the spread of invasion by Japanese forces, to protect her supply lines, and to loosen the hold of the enemy on her economic resources.

Amphibious warfare is the most difficult of all forms of warfare to wage successfully. It involves many elements that must be timed and co-ordinated exactly. Surprise in the initial asssault is usually essential but is very hard to achieve, especially in the case of operations of any magnitude. The most serious problem of the assaulting forces lies in overcoming the great natural advantages possessed by the defending forces in fighting from behind well protected positions of various forms, elaborately prepared in advance such as pillboxes, redoubts, trenches, caves, etc. The defensive has the advantage also of better artillery emplacements, easy ammunition supply, the use of mines and under-water obstacles of many kinds to obstruct actual landing operations and, as a rule, fewer logistic problems. The last mentioned frequently becomes the main problem of the offensive in amphibious operations. It may be said that, in general, the advantage lies decidedly with the defensive in amphibious warfare. Even before the entry of the United States into the Second World War it had been realized that any war in the Pacific would be largely amphibious in character. A program of research had, therefore, been started to develop devices and techniques that would neutralize some of the advantages of the defensive and would assist the assaulting forces in gaining a foothold on their objective without excessive casualties. Such research was stepped up intensively with the actual entry of the United States into the war.

The most elaborate and costly of all of the aids to amphibious warfare developed during the Second World War were the many types of craft, each serving its own special purpose, designed to land personnel and materials on hostile beaches. There were over one hundred different designs of such craft put into production, ranging in size from small boats and barges to large ships. Such craft were designated by letters and serial numbers instead of by names as is the normal custom in the case of naval vessels. The term "landing craft" was generally applied to nonocean-going vessels of less than two hundred feet length over-all, designed for use in landing operations. The designation LC followed by a letter to still further describe its purpose, was adopted to identify each type. For example, a vessel of this kind for ferrying tanks from cargo ships to the beach was designated as an LCT (Landing Craft Tank). Ocean-going vessels over two hundred feet in length, specifically designed for landing operations were designated as LS (Landing Ships) with a letter added to describe its special use. For example, an LSI is a landing ship for carrying infantry. Both of these categories of vessels were designed for grounding on the beach. They have large bow ports closed by ramps which are let down for discharging personnel and cargo. Their underwater shapes, especially at the stern, and their rudders and propellers are such as to facilitate backing off the beach.

A third type of landing craft represents an even more radical departure from the conventional, namely, the landing vehicle. These are true amphibians capable of operating in the water as well as on land. A standard automobile truck power plant and chassis formed the basis of the design. A watertight body was developed to provide for operation afloat. Two main types were developed, one fitted with a propeller and standard rubber tired truck wheels, and the other a tracked vehicle with the treads of the tracks acting as paddles to drive the vehicle through the water. The propeller driven type is known as the DUKW and was developed for landing on sandy beaches having a hinterland of roads good enough for normal truck use. This vehicle was especially useful in the Normandy campaign. The

tracked type known as the LVT (Landing Vehicle Tracked) is especially adapted to operation in the Pacific, where the vehicle had to travel over sharp coral formations which would have destroyed rubber tires, and through swamps and lagoons back of the beaches. The great usefulness of these vehicles consisted in their ability to carry men and materials from ships lying many miles off shore, through the surf, up onto the beaches, and directly inland to unloading points. Although originally intended only for landing assault forces, they were found of tremendous value in keeping up a steady stream of ammunition and supplies in support of such forces.

Under the landing craft building program there were produced about 3,300 landing ships (LS category), 40,000 landing craft (LC category) mostly of the smaller sizes, such as 36- and 50-footers, and about 19,000 landing vehicles (LV category), in addition to the DUKW program. In spite of these numbers, astronomical by any previous standard, there were never enough such craft. A simple example will suffice to illustrate the requirements, in this respect, of a major amphibious operation. The beach area assigned to the American forces in the Normandy assault totaled about 10,000 yards in length. Provision had to be made for landing craft to touch down at H-hour, on this length of beach at 75 yard intervals, loaded with assault troops. This first wave had to be followed by wave after wave of additional craft to land troops and supplies. The British sector of about the same length made equivalent demands on such craft. Until regular port facilities were restored, months afterward, the landing craft, mostly the landing vehicles, continued to deliver on the average 30,000 tons of supplies and 30,000 troops to the beach every 24 hours.

Other weapons and devices were invented especially to meet the requirements of amphibious warfare. Among these were the developments in radar making it possible for ships to find their way at sea and to exact spots on distant shores at night and under all weather conditions. The ability to land exactly where planned was found to be imperative, but had always been one of the problems of amphibious operations. These developments freed navigation from the need of celestial observations, lighthouses and other aids to navigation. Range finding is also no longer dependent on daylight and on clear weather. The development of rockets and rocket launchers make it possible to deliver a great volume of high explosives on to beaches from small boats. The rocket having no recoil requires no heavy foundations like the cannon, and is, therefore, suitable for installation in small craft. Methods and devices were developed for locating and destroying underwater obstacles and mines placed there by the defending forces to obstruct the passage of boats. Demolition crews were specially trained in the technique of demolishing such obstacles. Long-range flame throwers were developed to attack pillboxes, caves and other hideouts back of the beaches.

On the command and tactical side, the harmonious integration in amphibious operation, not only between the forces of Allies, but also within and between the sea, land and air forces of each country is particularly important. As a general principle, during the Second World War all naval forces were placed under a naval commander of the nation that had the primary naval responsibility in the area of operations. For example, during the invasion of Normandy and in the Mediterranean, the United States naval forces operated under British naval commanders, but the combined operation of all air, sea and land forces was under a United States commander in chief. In the Pacific, the British and Australian naval forces were under the operational control of a United States naval commander. The combined operations in the Pacific theater were under the command of a United States naval officer, and in the Southwest Pacific under a United States Army officer. In any specific amphibious operation, command of all forces engaged rests in the hands of the naval commander, until the troops have been put ashore and have established their command organization. At this point, the land force commander advises the naval commander that he has assumed command of the troops ashore.

The function of the navy in an amphibious operation falls into four main phases. During the approach phase the navy commands passage to the area of landings for the invasion forces, bombards shore batteries, landing beaches and supporting areas, conducts minesweeping operations and removes beach obstacles. Frequently, the bombing of landing beaches and shore defenses is a joint function of army and navy aircraft. In the landing phase the navy by employment of special landing craft, which have been briefly described above, puts the invasion forces and all their equipment ashore under cover of ships' guns and carrier aircraft. In the support phase, after the consolidation of the beachhead, the naval forces continue to provide artillery and air support to the forces ashore as long as they remain within range of ships' guns and until shore-based aviation can relieve aircraft carriers of the task of air support. In the supply phase, the navy must guarantee the security of supply lines of the invasion forces and must obstruct the enemy's efforts to reinforce his troops by sea. This, for example, was the main problem and mission of the navy in maintaining the American foothold on Guadalcanal during the early months following the assault operations.

Modern amphibious warfare demands a balanced fleet of aircraft carriers and the conventional types of naval ships in addition to the special types of landing craft already mentioned. This was found particularly true in the Second World War in the Pacific where the air coverage had to be provided for amphibious operations by carrierborne aircraft. There was no argument, especially in this theater, of carriers versus battleships as both were found to be essential. Such carrierborne aircraft had to control the air during landings and after landings until runways could be provided on shore. In the case of the amphibious operations in the European theater, shore-based aircraft largely performed these functions because of the close proximity of air bases. Attacks by Japanese suicide planes added a new problem to amphibious warfare during the Okinawa campaign in the spring and early summer of 1945, but despite the fact that 30 combatant ships were sunk and 223 were damaged by such attacks, there was no interruption in the complete control of the sea by the Allied naval forces.

Naval gunfire plays an important role in preparing the way for the assault troops in amphibious operations. The main batteries of battleships provide the only guns that are sufficiently powerful and accurate to knock out reinforced concrete pillboxes 8 to 10 feet thick and other similar gun emplacements such as make up the modern defense of beaches. After the initial bombardment

by heavy ships and support aircraft, the lighter ships move in. Just prior to sending in the first wave of assault troops, destroyers, gunboats and rocket ships lay down heavy barrages of fire. Ships and aircraft continue to give support as the troops advance inland from the beaches. It is considered that the risk of exposing ships is justifiable if the objective is sufficiently important, more especially when command of the sea is not in jeopardy. The Normandy landing was an especially convincing demonstration of the value of naval gunfire in support of amphibious undertakings particularly gunfire from battleships because of its power and accuracy.

The proportionate size of the land, sea and air forces needed for an amphibious operation depends largely on the distance of the operation from the nearest base of supplies or staging area. The largest operation of this kind during the Second World War, in point of numbers of troops and material landed, was the Normandy invasion during June 1944, but from the point of view of problems encountered it was not the most difficult operation of the war because it had the advantage of being based on England only about 50 miles away, whereas the operations in the Pacific were based on the United States some 6,000 miles away. During the 90 days from June 5 to Sept. 5, 1944, 2,086,000 Allied troops and 3,446,000 tons of stores were landed on the Normandy beachhead. About 2,500 naval ships and craft took part in this operation, most of them of the smaller sizes. This naval force was manned by about 124,000 naval personnel. Compared to this operation, the Lingayen Gulf operation of Jan. 9, 1945, in the Philippines is of interest. The naval attack and covering forces for this operation consisted of 1,033 ships, ranging in size from battleships and carriers on down through landing craft. The naval personnel in this force numbered upward of 273,000 men. The army forces put ashore on D-day and during the following four days were slightly more than two thirds of this number.

J. A. FURER,
Rear Admiral, U.S.N. (Retired).

ANATOLIA. See TURKEY.

ANDAMAN and NICOBAR ISLANDS. Two groups in the Bay of Bengal, together constituting a chief commissioner's province of British India. The province has an area of 3,143 square miles and a population (1941) of 33,935. The Andamans (2,508 square miles; pop., 21,483), 120 miles from Cape Negrais, Burma, consist of five large islands, collectively known as Great Andaman, and one small island to the south termed Little Andaman. The provincial capital is at Port Blair, finest of numerous good harbors. The Nicobars (635 square miles; pop., 12,452), 75 miles south of Little Andaman, consist of 19 islands divided into three groups; Car Nicobar, principal island of the northern group, contains the headquarters of an assistant commissioner. Coconuts and rubber are cultivated on the Andamans, and coconuts on the Nicobars. A penal settlement for convicts from India was established in the Andamans in 1858. It has now been abolished and on Sept. 1, 1945, the government of India announced a program for the Andaman and Nicobar Islands which included development of timber production, expansion of agricultural resources, and exploitation of the fisheries, this last to include establishment of a shark oil industry. The islands were occupied by Japanese forces in June 1942 and, although shelled and bombed from time to time, remained in their possession until conclusion of hostilities.

ANDERSON, Clinton Presba, United States Cabinet member: b. Centerville, S. Dak., Oct. 23, 1895. Mr. Anderson was appointed Secretary of Agriculture in the Truman Cabinet, effective July 1, 1945, to succeed Claude Wickard. Prior to his appointment, he was one of New Mexico's two representatives-at-large in the 77th, 78th, and 79th sessions of the United States Congress; chairman of the special House committee studying problems of the nation's food shortages (79th Congress); chairman of the House committee to investigate campaign expenditures (78th Congress); and member of the House Ways and Means Committee.

Mr. Anderson was educated at Dakota Wesleyan University, 1913–15, and the University of Michigan, 1915–16. From 1918–22, he did newspaper work in Albuquerque, N. Mex. He was New Mexico's treasurer, 1933–34, and in 1935–36, directed the state's rural rehabilitation and relief. In 1936–38, he was chairman and executive director of the Unemployment Compensation Commission, and in 1939–40, managing director of the Coronado Exposition Commission. He entered Congress in 1941.

ANDORRA, ăn-dŏr'à, a republic in a valley of the Pyrenees under the joint suzerainty of France and the Spanish Bishop of Urgel, to each of which an annual tribute of 960 francs and 460 pesetas, respectively, is made. The area is 191 square miles and the population about 5,231, scattered in some six villages. The capital, Andorra la Vieille (Andorra Vicella) has a population of about 700. Since 1278 Andorra has enjoyed undisturbed sovereignty and was granted a constitution as a republic by Napoleon in 1806. It is governed by a council general. The council is presided over by an official called the first syndic, who exercises the executive power. A second syndic serves as deputy of the first syndic. In 1941 universal male suffrage was abolished and the right of suffrage restricted to heads of families. In civil matters the judicial power is exercised in the first instance by two civil justices normally appointed jointly by the Bishop of Urgel and by the French government. The higher courts consist of a judge of appeal, a Supreme Court (held at Perpignan) and an Ecclesiastical Court, of the bishop, at Urgel. A permanent delegate, the prefect of the Pyrénées Orientales, is in charge of French interests and public services, established by France, such as education, posts, and telegraphs. An excellent motor road crosses the country, connecting the Spanish and French frontiers. The inhabitants speak Catalan and are chiefly Roman Catholics. Sheep raising is the principal industry, grains, tobacco, wine, iron, and lead also being produced. On Nov. 14, 1944, Andorra was occupied, for security reasons, by French gendarmes under the authority of General de Gaulle, as its ex-officio co-ruler.

ANGLO-AMERICAN CARIBBEAN COMMISSION. A joint organization to facilitate co-operation in matters of common concern in the Caribbean area. As announced on March 9, 1942, by the United States and British governments, it was created in the first instance as a war measure to co-ordinate research and to advise the appropriate agencies of the two countries responsible for administrative action. The membership of the commission was increased in June 1945 from six to

eight, four members from each country, two of the British representatives being unofficial West Indians. The co-chairmen are Charles William Taussig for the United States and Sir John Stuart Macpherson for Great Britain, the latter succeeding Sir Frank Arthur Stockdale in 1945. The secretariat, with co-secretaries, is in Washington, D.C. The United States section of the commission has been included in the Caribbean Office of the Department of State; and the British co-chairman, who is also Comptroller for Development and Welfare in the West Indies, has his headquarters in Jamaica. The scope of the commission's activities is not restricted to territories under the American and British flags, other countries in the area being invited to participate. The Caribbean Research Council, an advisory body formed in 1943, was established on a permanent basis on March 1, 1945, with headquarters and a central secretariat in the Caribbean area, the membership numbering not more than 15 and not less than seven. The council is divided into five committees, namely, public health and medicine; industries; building and engineering research; social sciences; and agriculture, nutrition, fisheries, and forestry. A second advisory body, the West Indian Conference, was formed in 1944 to provide a channel for the discussion and formulation of plans for co-operation; the membership comprises two delegates from each United States territory and each British colony in the Caribbean. The conference met for the first time on March 21-30, 1944, in Barbados, being attended by delegates and advisers from the Bahamas, Barbados, British Guiana, British Honduras, Jamaica, Leeward Islands, Puerto Rico, Trinidad, Virgin Islands of the United States, and Windward Islands; subjects discussed embraced local food production, expansion of fisheries, re-absorption of labor into civil life, planning of public works, health protection and quarantine, and industrial development.

ANGLO-EGYPTIAN SUDAN. A condominium in Africa extending southward from Egypt as far the borders of the Belgian Congo, Uganda Protectorate, and Kenya Colony; it is bounded on the east by Eritrea and Ethiopia, and on the west by Libya and French Equatorial Africa. The area is 967,500 square miles, and the population is estimated at 6,590,996, of whom 44,496 are non-natives. Geographically and culturally the Anglo-Egyptian Sudan falls into two parts: north from lat. 12° N. lies steppe and desert country; and south of that line, and separated from it for the most part by swamp and river, is the Sudan proper, "the Country of the Blacks." The capital is Khartoum (pop. 44,950), and other towns include Omdurman (104,513), capital under the earlier Dervish rule, and Port Sudan (21,535), located on the Red Sea.

Government.—A governor general (Lieut. Gen. Sir Hubert Jervaise Huddleston appointed Oct. 16, 1940) named by Egypt with British assent, administers the eight provinces into which the country is divided through provincial governors, under whom tribal sheikhs have been given increasing powers of self-government; natives administer the municipalities, townships, and rural areas of the Sudan, and preside over the Sharia (Mohammedan religious) courts and the lower civil and criminal courts.

Finance.—The central government obtains its revenue from direct taxation, royalties, and customs, and from profits derived from the railways, postal, and telegraph services, all owned and operated by the state. In 1943 revenue amounted to £E5,861,944, and expenditure was £E5,601,790. These figures do not include revenue and expenditure in 11 rural areas, where native authorities have considerable financial authority. Their combined budgets in 1942 amounted to £E202,566 (revenue, £E110,594; expenditure, £E91,972).

Education.—In the northern sphere of the country most of the schools are owned and operated by the government, and in the southern portion are mission schools which, to a considerable extent, are in receipt of state grants. Separate elementary and intermediate schools are provided for boys and girls; in the northern sphere, in 1942, there were 186 schools of both categories, public and private, with 33,551 pupils, and in addition some 20,000 boys received an elementary education in religious (Koranic) schools subsidized by the government. There were 63 schools up to intermediate standard in the southern sphere in 1942, and some 450 "bush" schools giving rudimentary instruction. Boys are trained as builders, carpenters, painters, fitters, and blacksmiths, and for the public health, railway, and other departments of the government; and girls are trained as nurses and midwives. Gordon Memorial College, Khartoum, developed as a secondary school under government control, was given in 1945 an independent governing body to promote its expansion into a future University College of the Sudan; as a first step, the higher schools of art, science, and engineering were unified with the institution in February 1945. The diploma of the Kitchener School of Medicine, which has been functioning for 21 years, has been given partial recognition by the Royal Colleges of Medicine and Surgery in Great Britain; its qualified doctors find employment in the Sudan Medical Service, many holding responsible administrative, specialist, and research posts.

Production.—The Sudan supplies 80 per cent of the world's needs for gum arabic. The principal grain crop is durra (millet), and beans, corn (maize), peanuts, sesame, chillies, and dates are also cultivated. Soya beans were planted for the first time in 1944. The principal commercial crop is cotton, cultivated by irrigation in the Gezira, between the Blue and White Nile rivers. Production in 1944–45 was a record for at least the past 20 years—206,578 feddans yielding 4,959 kantars per acre. On a partnership basis, the government guaranteed loans amounting to over £E11,500,000, and supplied the water, main canalization, and scientific research; the Sudan Plantations Syndicate supplied skilled supervision and marketed the crops; and the cultivator supplied the labor and, to an increasing extent, is associated through local boards with supervision and administration. The government and the cultivator take equal shares of 80 per cent of the profits, and the Syndicate gets the remaining 20 per cent. In 1945 the government served notice that it would terminate the concession of the Sudan Plantations Syndicate in 1950, when the Gezira fields are to be nationalized. Cotton is also grown on the Gash and Baraka deltas, and American long-staple is produced in the northern sphere under irrigation and in the southern sphere as a rain crop. The total area under cotton in 1941–42 was 401,546 acres, and the crop totaled 295,107 bales of 400 pounds each.

Much damage has been done to native crops in southern Sudan by herds of elephants, and in 1944 professional white hunters were engaged from Uganda to help reduce the numbers. Peri-

odically, locusts are also destructive. In Darfur province, in 1945, four *dambaris* (locust charmers) surrounded a large swarm of flying locusts to prevent them damaging the native crops. The locusts, unable either to escape by flight or to settle on the ground, remained stationary in the sky until, according to an unconfirmed report, American pilots, by some secret device, succeeded in bursting them in mid-air.

Forests in the north are limited in extent, and constantly threatened with encroachments of the desert. The mesquite tree has been successfully introduced from the United States; it has proved a valuable antierosive agent in semidesert conditions and, in addition, it provides highly nutritive fodder for cattle and an edible flour for human consumption. During the war, *podocarpus*, a soft tropical wood, was cut on the mountain slopes near Uganda and transported to the markets farther north. Camels are inoculated against trypanosomiasis, and cattle against rinderpests and pleuropneumonia. In 1942, exports of cattle amounted to 50,937, and of sheep to 153,943; and hides, skins, and ghee (clarified butter) were also exported in considerable quantity. Gold is mined at Gabait, on the Red Sea, and industries developed during the war include tanning, glassmaking, and the manufacture of perfume, buttons, and tomato-juice.

Defense.—Since Egyptian troops were withdrawn from the condominium in 1924, the country has been garrisoned by the Sudan Defense Force, of natives under Sudanese and British officers. Aided by Sudan Police and three battalions of British infantry, for four months during 1940 the S.D.F. held 1,000 miles of frontier against Italian-led troops who attempted to invade the Sudan from Eritrea and Ethiopia. In March 1945 a detachment of officers and men of the Saudi Arabian Army arrived at Khartoum for training with the S.D.F.

Communications.—The Sudan Railway, a government undertaking, runs southward from Wadi Halfa, on the Egyptian frontier, as far as Jebelein, south of Khartoum, a branch westward from Abu Hamed going to Kareima. From Atbara, there is also a line eastward to the Red Sea at Port Sudan and Suakin; and from Haiya, on that line, a railroad runs to Kassala (whence a spur into Eritrea was built during the war), and continues through Sennar, on the Blue Nile, to join the main line again at Khartoum. The railroads had a total length of 1,991 miles prior to the war. Magnificent harbor works have equipped Port Sudan with the finest quay-side and fueling facilities between Port Said and Singapore. Government-operated passenger steamers proceed up the Nile from Jebelein to Wantiak, a river port constructed during the war, whence is an all-weather road to Juba (the former steamer terminus), where connection is made with the Belgian Congo and Uganda transportation systems. Including other services on the Nile and its tributaries, there are 2,325 route miles of river transport operated by the government. Several airfields constructed during the war supplement those previously existing along the course of the Nile.

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ANGOLA. See PORTUGUESE COLONIAL EMPIRE.

ANIMAL INDUSTRY, Bureau of. See AGRICULTURAL RESEARCH ADMINISTRATION.

ANNAM. See FRENCH INDO-CHINA.

ANTARCTICA. South circumpolar continent lying almost entirely within the Antarctic Circle and surrounded by the Antarctic Ocean. In winter its surrounding waters are frozen over, and in summer they are strewn with drift ice. The continent itself, covered for the most part with an ice sheet hundreds of feet thick, and swept by polar winds, has an area of more than 5,000,000 square miles. Its longest axis—which passes near the South Pole—is 3,630 miles. It has a high mean elevation—6,000 feet above sea level—the elevation at the Pole, which is situated on a wide plateau, being 9,070 feet. Life found in the region is confined to certain marine animals, birds, and nonflowering plants. Various countries have asserted claims to portions of Antarctica—the United States, Germany, Chile, and Argentina being the principal claimants.

ANTHROPOLOGY. Wartime inhibition of field research in anthropology encouraged the re-examination of discarded concepts. In part this may have been favored by the passing of the older generation of anthropologists and the maturing of the younger group. For example V. Gordon Childe, the distinguished English prehistoric archaeologist, in his Huxley Memorial Lecture for 1944, reconsidered the old basic concepts of Stone Age, Bronze Age and the Iron Age as defining world horizons in culture. The American School of 1900 vigorously reacted against the general validity of these concepts except within the narrow confines of Western Europe, but Childe calls attention to the wealth of new data and the discovery of many localized chronological sequences, independent of absolute cross-dating, whence we are justified in treating sequences as relative. Thus we may find instances of bronze following an age of stone in non-contemporary horizons, to be followed in turn by the use of iron, whence the order of sequence becomes a reality. Once such sequences appear to be relative, it becomes more difficult to deny that there is such a phenomenon as culture evolution. Further, it may follow that the relatively contemporary appearances of pottery, agriculture and the domestication of animals are not fortuitous events as often claimed, but closely correlated steps in culture evolution. Dr. Childe cites a number of tool sequences which appear to have several localized distributions not strictly contemporary in historical chronology. A somewhat similar critical evolution of technological sequences is suggested in Linton's discussion of pottery types and their distribution, which he believes best interpreted as indicating the independent evolution of pottery in several areas instead of wholesale distribution from a single center of origin. (*American Antiquity*, 1944.)

Geographers have given unusual attention to culture and chronological problems. Special emphasis has been placed upon plant distribution. A discussion led by Cleland has contended that the native flora of Australia rendered the evolution of civilization impossible in that area, since neither a potential wild cereal nor root plant was available. Likewise, the fauna offered no encouragement to the domestication of animals. The native Blacks displayed sufficient intelligence to have taken advantage of such opportunities had they existed. Turning to the general subject of plant utilization, three papers deserve notice as attempts in scientific synthesis in human ecology: (1) D. Whittlesey, "The Horizon of Geography," in the *Annals* of the Association of American Geographers, 1945; (2) C. O. Sauer, "A Geographic Sketch of Early Man in America," *Geographic Review*, 1944; (3) G. F. Caster, "Plant Geography

and Culture History in the American Southwest," *Anthropology*, 1945.

The first paper proposes that the evolution of culture was intensively accelerated by the final circumnavigation of the world and the accumulation of sufficient geographical knowledge to comprehend the world as a whole. This knowledge was utilized by European peoples in their competitive struggle for the exploitation of the non-European world and its natural resources. A further proposal is that the time has come when every war will be a world war, followed by increased standardization in ways of living. The second paper deals with the natural distribution of the American wild flora, the changes in the distribution produced by man, as possible causal factors in some of these transformations, for example the creation of the great grassland area in middle United States by burning off the original forest cover. The third publication is a synthetic review of the data on plant utilization so far accumulated, pointing to the dawn of a new scientific horizon on which we shall be able to reconstruct the history of culture in terms of agronomy and animal industry. Tentative reconstructions are proposed which incline one to believe that agriculture in the New World, for example, may well be as ancient as agriculture in the Old World.

Some published data and interpretations by the late Aleš Hrdlička suggest that the Aleutian chain of islands was first inhabited by a people resembling certain surviving North American Indian tribes. This population was fairly homogeneous anatomically and culturally and its period of occupation relatively long. It was rather long headed, suggesting to Hrdlička later Siouan and Algonkin types. As to time relations, Hrdlička, always reluctant to believe any human occupation of America more remote than 2,000 years, suggests very late B. C. dates, even though the lowest levels in midden refuse excavated by him rested upon virgin glacial deposits of boulders and sand. Further, the successive layers of refuse indicated marked changes in post-glacial climate during the period of occupation; in all, pointing to a greater antiquity than Dr. Hrdlička was willing to accept. However, the significant finding is that before the Russians began to trade in the islands, the ancestors of the historic Aleuts spread over the same territory, displacing the earlier population. Hrdlička proposes that the pre-Aleuts resemble Tungus Siberian tribes, whereas the Aleuts seem closely affiliated with the Eskimo and are assumed to have entered the Aleutian chain from Alaska. Observations recently reported by military and naval observers all seem consistent with this concept of a pre-Aleut people, so we seem justified in noting this definite contribution to the archaeology of Arctic America.

An important contribution to American Indian Linguistics was the publication of a new map of North American Language Stocks, compiled by C. F. and E. W. Voegelin, Indiana University. The text upon which this new map is based forms a chapter in *Language, Culture and Personality*, Menasha, Wisconsin, 1941. The original list of families in the Powell classification is recognized, but these are presented as constituting six super-families, or groups, based upon structural resemblances between the recognized families. The distributions of these six groups reveal dominant geographical blocks, suggesting as many main centers of differentiation. The most consistently segregated groups are the Eskimo and the Algonkin-Salish clusters. The other super-groups show large contiguous geographical distributions with small, scattering, outlying, more or less isolated families. The tendency to consolidated distributions supports the genetic interpretation accorded to the super-family grouping.

Several years ago we announced in these annual summaries of progress in anthropology the Swedish discovery of a chemical technique applicable to the locating of archaeological sites. Now Professor Bray, University of Illinois, has tested this method and recommends it to field workers in America. Excessive amounts of phosphorus in the soil indicates human habitation sites, historical and ancient, and the quantity of this substance is an index of size and length of occupation at the place.

The reader may be advised that each year T. F. McIlwraith issues an annotated bibliography of ethnology, anthropology and archaeology, published in the *Canadian Historical Review*. These lists were begun in 1925 and have continued until the present, thus comprising an accumulative index of the literature of our subject.

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ANTIBIOTICS. See MEDICINE.

ANTIGUA. See LEEWARD ISLANDS (B.W.I.).

ANTIMONY. Domestic production of antimony ore in 1944 decreased 20 per cent below the 1943 output, the total metal content of the ore declining 15 per cent, according to the United States Bureau of Mines. Primary antimony raw materials were consumed by producers of the intermediate products, antimony metal, oxide, sulphide, and by manufacturers of finished metal and nonmetal products; the two groups in 1944 used 22,675 short tons (antimony content) of antimony ore, 4 per cent less than the 23,505 tons in 1943. Only 45 per cent (10,163 tons) of the total consumed was from mixed or oxide ore—mostly from Mexico—as compared with 56 per cent (13,224 tons) in 1943. Nine plants consumed 22,000 tons of antimony in raw materials, including 19,000 tons in ores and concentrates, and produced antimony metal, oxide, and sulphide containing 20,000 tons of antimony, slightly less than the output in 1943. Flameproofing of canvas for military uses such as tents, tarpaulins, camouflage netting, life preservers, and the like continued to be the largest end use for antimony, using 7,063 short tons of contained antimony in 1944.

APPLES. In many respects and especially in certain sections of the country, the 1945 apple crop of the United States was close to a failure. Only in the Western states did production hold up to something close to normal. Throughout other sections of the Union, the yield dropped from as much as one half to but little over one fourth the normal crop. In the North Atlantic states the 1945 crop dropped from a ten-year average (1934–43) of 33,747,000 bushels and a 1944 crop of 34,941,000 bushels to 8,308,000 bushels. In New York alone the drop was from 17,010,000 bushels in 1944 and a ten-year average of 15,887,000 bushels to 2,700,000 bushels. In the South Atlantic states the drop was from 23,451,000 bushels in 1944 and from the ten-year average crop of 18,978,000 bushels to 6,354,000 bushels in 1945. In the North Central states the drop was from 18,891,000 bushels in 1944 and the 1934–43 average crop of 20,825,000 bushels to 7,920,000 bushels in 1945. In the South Cen-

tral states production dropped from an average crop of 1,342,000 bushels and a 1944 crop of 1,104,000 bushels to 979,000 bushels in 1945. However, in the Western states the drop was very slight: from an average crop of 44,153,000 bushels and a 1944 crop of 46,367,000 bushels to a 1945 crop of 43,193,000 bushels. Virginia, the second Southern state in production, like New York, was hard hit, her crop dropping from 14,580,000 bushels in 1944 and an average crop of 10,903,000 bushels to 3,330,000 bushels in 1945. A late freeze was responsible for most of the damage throughout the Eastern states. The country's total crop, in bushels, was as follows: 1945, 66,754,000; 1944, 124,754,000; 1934–43 average, 119,046,000. Washington, now the leading producing state, had a 1945 crop of 26,180,000 bushels, a drop from 31,100,000 bushels in 1944. California went into second place in 1945 with 9,240,000 bushels against 6,144,000 bushels in 1944, while Virginia took third place with the crop referred to above.

APRICOTS. The Department of Agriculture estimated the 1945 United States crop of apricots at 211,600 tons, as compared with the 1944 crop of 854,900 tons and the 1934–43 average crop of 215,415 tons. Commercial production is reported for only the three states of California, Washington and Utah. California is by far the leading producing state, being credited with 177,000 tons in 1945, 324,000 tons in 1944, and a ten-year average crop of 197,700 tons.

AQUEDUCTS. See TUNNELS.

ARAB LEAGUE, The. A regional bloc in the Middle East, constituted to safeguard the common interests of signatory monarchies and republics whose inhabitants were predominantly of Arab stock and Moslem in religion. Conscious of dangers lurking in separatism, these countries had been drawn together during the war by ties of blood, however diluted, of language, and religion. Threatened submergence of the Arab majority in Palestine by an influx of Jews and newly-awakened foreign interest in Arabia because of its petroleum deposits formed the background of the unity movement spurring the Arabs into preliminary talks in the fall of 1943. These were carried a stage further in September-October 1944, when representatives of Arab states met in Alexandria, Egypt, to draw up tentative plans for a permanent federation analogous to that of the Pan American Union. Discussion was resumed in Cairo on Feb. 14, 1945, and the outcome was adoption on March 22 of the charter of the Arab League. The constitution, consisting of 22 articles, stated, *inter alia*, that the league's aim was to promote co-operation among member states, particularly in matters of culture, trade, and communications, and to settle questions of passports and nationality among its members; the use of force to settle disputes was forbidden; if a dispute between members was arbitrated by the league, the latter's decision must be accepted as final and binding; treaties and alliances concluded by member states must be deposited with the league; states may withdraw from the league at any time, or may be expelled by unanimous vote of the other members.

The first members of the organization were Egypt, Iraq, Lebanon, Saudi Arabia, Syria, Trans-Jordan, and Yemen. While Palestine, as a British mandate, was not accepted as a full and equal member, she was admitted to the league's deliberations and, by Article XXI of the charter, given a vote in the decisions of the council. Lebanon was the only state whose inhabitants, although Arabic in race, were predominantly Christian in religion; and Trans-Jordan and Yemen were the only two who were not members of the United Nations Conference for International Organization held in San Francisco in the spring of 1945. These seven states covered an area of some 1,500,000 square miles, and their combined populations totaled 33,000,000. Since, with the exception of Lebanon, the member-states of the Arab League were overwhelmingly Moslem in religion, and within their borders lay most of the Islamic Holy Places, the influence of their organization was bound to extend far beyond its membership. The world's 250 million Moslems include 90 million in India, 48 million in China, 20 million in Soviet Russia, and other millions in southeastern Europe, north, west, and east Africa, the East Indies, and the Philippines. It is against this vast background of religious ties that the important problems of the Moslems, as now voiced by the Arab League, will have to be viewed.

On May 1, 1945, with the express purpose of presenting a united front, the five states who were members of UNCIO officially deposited a copy of the constitution of the Arab League with the secretariat of the new world body, shortly thereafter known as The United Nations. The Arab League soon was called upon to assume a position in the dispute between France and the republics of Syria and Lebanon, where fighting had broken out on the issue of unfettered independence. During June 4-11, 1945, the council of the league met in Cairo, where it discussed measures to be taken to support the demands of its member-states, and expressed gratitude to Great Britain for her intervention in the interests of the Arabs. Beyond the confines of the council body discussions were also proceeding, at this time, for expansion of the Arab League into a larger non-Arab federation in the Middle East where Jews and Christians might take their place with the Moslems. In order that the Arab point of view might be presented more fully before western opinion, during 1945 the governments of the states constituting the Arab League opened an Arab Office in London and a second one in Washington. The league council met in Cairo once more in November, mainly to concert measures for countering the campaign for further Jewish immigration into Palestine (q.v.); on Dec. 3, 1945, it was announced that the seven member states intended, with effect from the first of the new year, to boycott all Palestinian goods produced by Jews.

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ARABIA. A peninsula in southeastern Asia, bounded northeast by the Persian Gulf and the Gulf of Oman, southeast by the Indian Ocean and the Gulf of Aden, and southwest by the Red Sea and the Gulf of Aqaba; on the north it is bounded by Iraq and Trans-Jordan. The total area is rather more than 1,000,000 square miles, and the population is estimated to exceed 9,000,000. Saudi Arabia and Yemen are wholly independent states; all other territories in Arabia are under British control in varying degrees, namely Aden and Aden Protectorate, Oman (or Muscat and Oman), Trucial Oman, Qatar, Bahrain, and Kuwait. The foregoing are treated below. Countries outside the peninsula with predominantly Arab populations are Egypt, Iraq, Lebanon, Palestine, Syria, and Trans-Jordan (qq.v.)

Saudi Arabia.—A kingdom having a long coastline down the Red Sea and a shorter one on the Persian Gulf. The area is 721,000 square miles, and the population is estimated at 4,500,000. The kingdom comprises Nejd (area, including Hasa, 557,000 square miles; pop. 3,000,000) and Hejaz (area, including Asir, 164,000 square miles; pop. 1,500,000), each with a distinct system of government; the capital of Nejd Riyadh (pop. 30,000), and that of Hejaz is Mecca (pop. 80,000). King Ibn Saud conquered Nejd, Hejaz, and Hasa during and after the First World War and organized the kingdom in 1932, adding Asir two years later. Amir Saud, eldest son of the king, administers Nejd, and Amir Faisal, the second son, is governor of Hejaz; administration of Nejd is patriarchal, while Hejaz has a constitution providing for a Council of Ministers subject to the governor's wishes. Foreign diplomatic and commercial representatives have their headquarters at Jidda (pop. 30,000), on the Red Sea. Mecca and Medina (pop. 30,000) are the Holy Places of Islam; the provincial capital of Hasa is Hofuf (pop. 30,000); and Sabiya (pop. 20,000) is the capital of Asir province.

Saudi Arabia produces cereals, fruits, wool, tobacco, sugar cane, clarified butter, dates, sorghums, and vegetables, and raises camels, horses, donkeys, sheep, and goats. Coffee is cultivated in Asir. Copper and brass cooking utensils are manufactured at several places, and at Mecca, a type of dagger, black coral prayer beads, and silver and gold filagree ornaments; Arab robes ("meshlas") are made at Hofuf and elsewhere, as well as tents and carpets from woven sheep wool and camel or goat hair. Copper, gold, and silver are mined by American companies in the northwestern area of the kingdom, but the most important enterprise in the country is the production of petroleum. In Hasa, on the Persian Gulf, are oil reserves which have been proved at five billion barrels and may amount to 20 billion; only the United States and Iran have greater known reserves of petroleum. Oil was first located, at Dammam, in 1935, and in 1939 the Arabian American Oil Company ("Aramco"), a joint interest of the Standard Oil Company of California and The Texas Oil Company, obtained a concession for 450,000 square miles; besides the installations at Dammam, oilfields were developed at Abu Hadriya, Qatif, and Abqaiq, and refineries at Ras Tanura, a deep-water port, with a 50,000-barrel daily capacity were completed in 1945. Headquarters of "Aramco" are at Dhahran. King Ibn Saud is paid a royalty of four gold shillings for each ton of oil extracted. Plans for construction of a pipeline more than 1,000 miles in length from the oilfields to the Mediterranean were under consideration in 1945. Possible Mediterranean outlets were Tripoli or Saida, in Lebanon; Haifa or Gaza, in Palestine; El Arish, Port Said, or Alexandria, in Egypt; but political factors would undoubtedly control the decision.

Exports of minerals and petroleum products are of prime economic importance; lesser exports include charcoal, clarified butter, dates, hides, honey, salt, and tobacco. Besides much mining equipment, imports comprise automobiles, foodstuffs, textiles, household hardware, light structural steel, and cement. Though Saudi Arabia has its own silver coin, the riyal, equal in value to the Indian rupee, the British gold sovereign is the basis of the kingdom's currency. There are few modern highways, motor traffic and camels making use of the many tracks across the country. The principal centers are served by good radio telecommunications, and air services link the country with the outside world.

In 1945 Ibn Saud aligned his country with its neighbors as a member of the Arab League (q.v.), Saudi Arabia's delegate signing the final draft of that body's constitution on March 22. The kingdom also declared war against Germany and Japan on Feb. 28, 1945, though excluding the zone of the Holy Places of Islam. Thus Saudi Arabia qualified for representation at the United Nations Conference for International Organization, and on April 12 her minister in Washington signed the Declaration of the United Nations.

Yemen.—An independent imamate lying between the Asir province of Saudi Arabia and Aden Proctectorate; it has an estimated area of some 75,000 square miles, including several semi-independent districts, and a population of about 3,500,000. The Imam is Yahya Muhammad Hamid ed Din. Yemen contains some of the most fertile sections of Arabia, producing—in the highlands—wheat, barley, alfalfa, grapes, figs, and other fruits and vegetables; in the coastal plain of the Tihama and adjoining valleys—dates, sorghums, corn, tobacco, sesame, senna, indigo and vegetables; and on the terraced western mountain slopes, at altitudes of between 3,500 and 6,800 feet—the world-famed Mocha coffee, and "kat or khat," a narcotic plant which rivals coffee in value. The principal towns are San'a (the capital), a walled city with eight gates and a population of between 20,000 and 25,000; Dhamar, and Taeiz (Ta'izz), the principal seaports are Hodeida (Hodeda, Hadeda) (40,000), and Mocha (Mokha).

Aden. —The British colony of Aden, and **Aden Protectorate,** are in the southwestern portion of the peninsula, bordering on the Gulf of Aden. The combined area is about 112,000 square miles, of which only 75 square miles constitutes the colony. The population is estimated to amount to 600,000, of whom 65,000 reside within the colony; the port of Aden has 48,000 inhabitants. The seaport has a large transshipment trade, and is an important naval base and fueling point for commercial vessels. Besides mainland territory, the colony includes the islands of Perim (5 square miles) and Kamaran (22 square miles) and the Kuria Muria islands (30 square miles). The governor is Reginald Stuart Champion, appointed Dec. 15, 1944. Revenue in 1943–44 amounted to Rs.11,623,347, and expenditure was Rs. 4,695,466. There were 65 schools in the colony in 1944, some of them conducted or partially supported by the government. The principal exports comprise coffee, gums, hides and skins, opopanax oil, and salt, while the chief imports are coal, cotton textiles, foodstuffs, and fuel oil.

Aden Protectorate, controlled by the governor of the colony though not directly administered, consists of western and eastern groups of territories: the former comprises 19 sultanates; and the eastern portion contains the Hadhramaut (within which are two Arab states), three sultanates, and two sheikhdoms. Butter, dates, fish, gums, honey, and tobacco are the principal products. Lack of rains caused a complete failure of the scanty agricultural crops due to be harvested in February 1945, with the result that a severe famine ensued. Besides camels, the livestock comprises sheep, humpless cattle, and goats.

Oman, or Muscat and Oman.—A sultanate in treaty relationship with the government of India, is situated on the southeastern corner of the Arabian peninsula. The area is 82,000 square miles,

and the population is estimated to amount to 500,000. Muscat (pop. 4,200), the capital, contains the palace of the sultan (Sir Saiyid Said bin Taimur succeeded in 1932); Matrah (pop. 8,500), 3 miles north of the capital, is an important commercial center. Dates are the chief agricultural product, and camel raising the principal animal industry. Besides dates, dried fish, fresh and dried limes, and pomegranates are exported; coffee, rice, and sugar are the main imports. In addition to its own copper piece, known as the baiza, the Maria Theresa dollar is current in Oman; however, the legal currency is the Indian rupee, which circulates in the coastal districts. The larger towns are connected by motor roads; elsewhere camels and donkeys are used for purposes of transportation.

Trucial Oman.—Extending for about 400 miles along the south end of the Persian Gulf, Trucial Oman comprises the domains of seven sheikhs who have agreed not to enter into relations with, or cede territory to, any other Power than the British. The sheikhdoms (Abu Dhabi, Ajman, Debai, Kalba, Ras al Khaimah, Shargah, and Umm ul Qawain) have an aggregate area of 6,000 square miles and a population estimated to amount to 80,000; Sharja (pop. 5,000) is the capital. The British government is represented in Trucial Oman (also termed the "Trucial States") by a Political Officer and a Residency Agent who are subject to the Political Resident in the Persian Gulf (Lieut. Col. Sir Geoffrey Prior). Dates and grain crops, particularly sorghum, are cultivated; fisheries along the coasts yield a high grade of pearl. Surveys have failed to disclose evidence of petroleum deposits. Abu Dhabi and Debai are the principal ports.

Qatar.—A sheikhdom on the Persian Gulf north of Trucial Oman, and in like treaty relationship with Great Britain. The area is 6,000 square miles, and the Sheikh (Abdullah ibn Jasim al Thani succeeded in 1913) has his residence at Dohar (pop. 5,000), the capital. Dates are cultivated and stock is raised, while in the interior vegetables are grown by irrigation from wells. Pearl diving is the principal industry on the coast. American and European oil interests obtained a concession in 1935 to seek petroleum deposits. Two wells commenced commercial production in 1941, this being an undertaking of the British-owned Iraq Petroleum Company, a quarter interest in which is shared by the Standard Oil Company of New Jersey and the Socony-Vacuum Company. There are indicated reserves of one billion barrels of petroleum.

Bahrain.—A sheikhdom under British protection comprising an archipelago in the Persian Gulf within 20 miles of the Saudi Arabian mainland province of Hasa. The principal islands are Bahrain, Muharraq, Sitra, Hawar, Umm Nasan, Jidda, and Umm A'Sabaan; the total area of the sheikhdom is 270 square miles, and the population is estimated to number 120,000. Manama (pop. 40,000), the capital, is on Bahrain Island, which is linked with the neighboring island of Muharraq by a causeway and swing bridge. The Sheikh (Sulman, succeeded Feb. 3, 1942) has for his principal adviser an Englishman, C. Dalrymple Belgrave, chief of the police and magistracy; the British Political Agent is E. B. Wakefield. Pearl-oysters have long been plentiful in the waters of the archipelago, center of the famous pearl fishing industry of the Persian Gulf, but the pearl market has shown decline in recent years. Other industries are boat building, date cultivation, manufacture of sailcloth and reed mats, and the breeding of white donkeys. The petroleum industry is of greatest economic importance. Oil was first found in 1932, and has been produced since then by the Bahrain Petroleum Company, jointly owned by the Standard Oil Company of California and The Texas Oil Company (which also own "Aramco," of Saudi Arabia); the headquarters of the oil company is at Manama. The capacity of the refinery was increased to 58,000 barrels daily in 1945. Royalties on oil production constitute the sheikhdom's main revenue. While the Indian rupee is the legal currency, the Maria Theresa dollar and the Turkish lira are also in circulation.

Kuwait.—An independent sheikhdom under British protection, lies at the head of the Persian Gulf, between Iraq and Saudi Arabia, with small neutral zones to the south and west. The area is 1,950 square miles, and the population is estimated to amount to 60,000; the capital is Al Kuwait (pop. 25,000). The Sheikh (Sir Ahmad al Jabir al Subah, succeeded Feb. 23, 1921) is assisted in administration by an advisory council composed of 14 chiefs. Al Kuwait is a seaport which has long provided a medium for trade with the interior of the Arabian peninsula. Dates, donkeys, horses, and sheep are the principal interests of the people, who also engage in fishing, pearl diving, and boatbuilding. The country is rich in petroleum deposits. Oil was struck in 1938, and reserves of nine billion barrels of petroleum have been indicated. Production is conducted jointly by the Anglo-Iranian Oil Company and the American-owned Gulf Oil Company. Although the Indian rupee is the legal currency, Maria Theresa dollars are in circulation.

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ARCHAEOLOGY. The year 1945 saw little concentrated excavation, although considerable study and research took place. This was most evident in the large number of books produced in Europe during the years of the war which in the fall of 1945 were just beginning to reach this country. Ten pages in double column of these new books appeared in the *American Journal of Archaeology*, 1945, and bear witness to the great activity of scholars during this time in France, Germany, Italy, and Russia. Some of these books are already out of print and many may not be available because of bombings.

Mesopotamia.—The most important excavation in Mesopotamia during 1945 was conducted at 'Aqar Qūf, 20 miles west of Baghdad. Here was the capital city of the Kassite kings, Dur Kurigalzu. A ziggurat, 69 by 67.60 meters, made largely of well-tempered sun-dried brick with staircases of kiln-baked bricks, was uncovered. The core of the structure, which was oriented to the four points of the compass, rises 57 meters above the plain. After every eight or nine courses of brick was a layer of reed matting of tough texture, bedded in sand and gravel. Plaited ropes of the same material run at intervals through the structure and reinforce it.

In addition to the ziggurat, four temples were partially excavated, the most important of which is known as the House of the Great Lord. The walls are of solid brick; the pavements, of brick, show that they were sometimes coated with bitumen. Fragments of a diorite statue inscribed with the deeds of the king (probably Kurigalzu) were found. Clay tablets give an approximate dating in the 15th century (*Iraq Supplement* 1944).

Also in northern Iraq, excavations were conducted at Tell Hassuna, south of Nineveh. The earliest human remains yet known in Iraq, dating from Neolithic times, were uncovered in the lowest stratum. The new Hassuna culture dates at the beginning of the 5th millenium. The excavations prove that Samarra ware is earlier than the Tell Halaf period (*Palestine Exploration Quarterly*, 1944).

Greece.—A still unpublished nude male figure, a kouros dating after 510 B.C., was found at Anavysos, in Attica. The statue, after it was discovered, was buried in order to protect it from the Germans, but it is now in the National Museum. The figure is not in a frontal position, the weight having been shifted to one foot. The face is not completely preserved.

The Museum of Fine Arts in Boston, Mass., has acquired a marble sphinx dating c. 540 B.C. The head is missing, the color in a good state of preservation. The sphinx rests on a capital with two volutes and palmettes (*Bulletin, Boston Museum of Fine Arts*, 1945).

A new acquisition by the Metropolitan Museum in New York City was a bronze hydria of the second half of the 4th century. A representation of Eros in relief, looking into a mirror and leaning on an archaistic statue, adorns the vase.

The famous Graeco-Iberian statue of the Lady of Elche, long one of the treasures of the Louvre, was exchanged by the Vichy government with Spain and is now in Madrid. It is the subject of an elaborately illustrated book by A. G. y Bellido (*La Dama de Elche y el conjunto de piezas arqueologicas reingresadas en España en 1941*, Instituto Diego Velasquez, Madrid, 1943).

A racial analysis of the Greeks, presented in several studies, shows unusual heterogeneity expressed in six artificial types. The main trend is Alpinoid, and genetic continuity is striking. A study of 40 sub-Mycenaean skulls from Kephallenia (after 1100 B.C.) shows that they are dominated by Basic White (especially "megalithic") and Mediterranean types, with mixed Alpine and Alpine minorities. Where they diverge from Mycenaean Greeks (1600-1100 B.C.) they resemble chalcolithic Sardinians, Siculians or Minoans, and contrast with Alpinoid Isthmian Greek contemporaries. The problem is raised: What Trojan War activities explain 32 per cent of male head wounds?

Among the most elaborate publications during the war was a new volume on Delphi, containing 248 plates (De la Coste Messeliére, *Delphes*, Paris, 1943).

The decipherment of the Cretan script was furthered by a study of the language of Linear Class B on the "chariot" tablets from Knossos, which indicates that it was inflected (*American Journal of Archaeology*, 1945).

Medieval Athens of the 12th century was also studied (*Speculum*, 1944).

Italy.—No new discoveries were reported, but a number of articles on the fate of art treasures and the looting of works of art appeared. The Medici Venus in Florence appears to have been one of the victims. The *London Times* for Oct. 6, 1944, gave a list of the more important works of art sequestered by the Nazis for "safekeeping." These include between 450 and 500 paintings and statues, some of which have been recovered. The famous head of Nefertiti from Berlin was found hidden in a cave in Germany along with hoards of gold.

Enemy bomb attacks revealed new discoveries in regard to Roman London. New views of the Roman wall resulted from air raids near Cripplegate and belong to the most impressive remains still above ground. One of these views is just north of Tower Hill and is thought to be preserved to its original height. Another section, back of the Crescent, stands 20 feet above the present ground level, but the ancient level was 15 feet deeper. A drawing of a reconstruction of Roman London, showing the line of the wall appeared in *Illustrated London News*, Sept. 16, 1944. (Compare Sept. 9, 1944.)

Bulgaria.—A most significant discovery of a Hellenistic tholos tomb, dating between the 3d and 1st centuries B.C., is reported from Kazanlik. A circular section at the top of the vault contains paintings perfectly preserved, with representations of a funeral banquet with servants and horsemen, and an inner ring with chariot races in honor of the dead (*American Journal of Archaeology*, December 1945).

Spain.—Excavations in Spain at Silos, Cataluna (Catalonia), unearthed in a Benedictine monastery there a strongly fortified town of importance around 100 B.C. It was inhabited for about 1,500 years and contained Bronze Age, Hispano-Roman, and Hispano-Visigothic objects. It is reported that these discoveries "have helped to clear up some points regarding the first Aryan invasion of Spain, and throw light on the Roman and Visigothic periods in Spanish history."

Russia.—The most spectacular discoveries continue to be those in Russian territory, especially in the Black Sea region at Phanagoria, in the Caucasus, and the Saian and Altai expeditions. At Phanagoria, 10 strata dating from the 6th century B.C. to the 13th century A.D. were reported. Greek traces appear first in the Late Archaic period and the beginning of the classical period (10th level). No architectural structures of importance are found before the classical period, but a flourishing building activity is attested for the Hellenistic age. Fragments of wall paintings used as interior decoration were found. The Roman period marks a decline (V. D. Blavatskii, "Otchet o Raskopkhakh Fanagorii V," *Trudy*, 16, pp. 5–74).

The Saian Altaian Expedition, under L. A. Fvtiukhova and S. V. Kiselev, reported on burial structures on the Kurai steppe forming a continuous series from the Bronze Age to the 9th century A.D. and on stone statues in the northern Altai.

Publications.—Books covering the significant discoveries in the Caucasus are not yet available in this country. The Smithsonian Institution continues to publish important articles of interest to the general public, one on the "Culture of Indonesia," *Smithsonian Report*, pp. 513–22, 1943); another on "Aboriginal South American Culture," *Ibid.*, pp. 429–61; still a third on "French Indo-China," *Smithsonian Institution War Background Studies*, 19, 1944); the *Geographical Review*, pp. 529–73, 1944, gives a sketch on "Early Man in America." See also PEABODY MUSEUM.

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ARCHITECTURE. With the rapid disintegration of the German armies during the first half of 1945, the building industry which had already been poised for postwar activity was given its first go-ahead. On May 29, the War Production Board amended Order L–41 so that some civilian construction might proceed. After that time, and particularly after the defeat of Japan, govern-

mental controls were rapidly relaxed. On October 1, the ban on house construction was lifted to permit the building of 32,000 units for nonveteran, nonwarworking citizens, and on October 15, all restrictions were removed. The Producers' Council estimated that this upturn would result in a four billion dollar total for the industry in 1945. To be sure public construction fell off rapidly but this was offset by a rise of 42 per cent in private construction over 1944 totals.

Under the guise of lend-lease the United States Foreign Economic Administration promised England 30,000 "pre-fab" houses to be used in bombed-out areas. The first units arrived in Britain before May. American designers showed great ingenuity in constructing and packaging these houses within the restrictions imposed by available materials and labor. These homes are 24 by 24 feet with a porch projecting 4 feet on one side. They contain a living room, two bedrooms, kitchen, bath and entry with ample closet space. They set upon a 4-inch concrete slab and, since the heating unit is above ground, no basement is needed.

Meanwhile architects and manufacturers turned their hands toward speeding up housing for the masses. The prefabrication field was entered by many concerns which had built "pre-fab" structures for the nation at war. Some of these concentrated upon panel or sectional construction, others upon the familiar TVA system of delivering the assembled house in sections.

A house of laminated-arch "pre-fab" construction, based upon methods developed in connection with wartime procedures, was designed by architects Kump, Wurster, and Bernardi. A major advantage of this system of construction is the total absence of interior bearing walls and the freedom in planning or replanning room arrangements that results. In such houses the walls and roofs are supported on laminated plywood arches spaced four feet apart and tied together by continuous members at floor, eaves, and roof. Hollow frame wall and roof panels, with any desired surface can be attached to these arches; likewise windows and doors.

Two Texas state colleges collaborated on a small house for Texas habitation. This unit was so planned that each room had maximum cross ventilation. The cost, not including the lot or furniture, was pegged at $2,000. Architects are more and more recognizing the need for regional differences in houses.

An interesting development was the production upon a "pre-fab" basis of the much-heralded Solar Home designed by Architect George Fred Keck. In this house solar orientation and panel heating are combined in such a way as to insure maximum efficiency of both. A gas-fired furnace is used to produce warm air in a closed system circulated through underfloor, clay tile ducts.

Materials and Construction.—Many materials and processes developed in response to wartime needs were directed toward the building field. This was particularly true of aluminum which is destined for a wide use in the kitchen.

The Heating Research Home at the University of Illinois experimented with a novel method of heating. Here a baseboard made of hollow cast iron is used along the outside walls of rooms. This is supplied with circulating hot water from a standard domestic heating boiler. It provides an easy-to-clean source of heat which results in evenly distributed room temperatures.

A new water- and flame-proof upholstery material (Naugahyde) in a wide range of light, bright, clear colors and not affected by perspiration, salt water, alcohol, gasoline, oils, greases, most acids, and alkalis, was announced.

Design.—Innovations in design were seen in Frank Lloyd Wright's plans for the Guggenheim Gallery in New York. The architect proposed to display Guggenheim's modern pictures along a continuous ramp ascending by imperceptible degrees for three quarters of a mile. Elaborate designs were worked out for a United Nations Center by architects Wurster, Bernardi, and Born. Planned to occupy a 1,000-acre bay-side site on Stanford University's vast campus, the design calls for a group of structures including two secretariats, an auditorium, office buildings, a library, a museum, and an archives building, together with the necessary courts, plazas, and landing areas to make this highly modern ensemble a related whole. Another outstanding design was the great research center planned by architects Saarinen and Swanson for the General Motors Corporation. It consists of a group of buildings arranged around a central lake on a 350-acre tract providing flexible space for the corporation's vast program of product development research.

At Rochester, Minn., a thoroughly modern design was adopted for the Kahler General Hospital. Aside from its aesthetic interest, the building will be the first in America to discard riveted-steel construction in favor of an all arc-welded steel frame. The New Tripler Hospital, under construction near Honolulu, in addition to interesting design innovations, presents an earthquake resistant rigid concrete frame with stuccoed concrete-block walls.

Architects.—Postwar planning projects put many architects back to work and many new architectural firms were announced. Several prominent architects died. Among them was J. Andre Fouilhoux of New York, collaborating architect of the Trylon and Perisphere at the New York World's Fair and of the Rockefeller Center. Associated with the late Raymond Hood, Fouilhoux worked on the designs for the Chicago Tribune Tower, and the McGraw-Hill and Daily News buildings in New York. Another loss was John A. Holabird of Holabird and Root, Chicago, whose firm had designed such important buildings as the Palmolive Tower, the Palmer House, the Stevens Hotel, and Northwestern University's Institute of Technology in the Chicago area, and Hotel Statler in Washington. Other losses were N. Max Dunning, architect of Chicago and Washington, and Leon C. Gillette of Walker and Gillette of New York.

The American Institute of Architects elected the following officers: James R. Edmunds, Baltimore, president; Samuel E. Lundeen, Los Angeles, vice president; Alexander C. Robinson, Cleveland, secretary; Charles F. Cellarius, Cincinnati, treasurer.

Foreign Architecture.—French architects, among them the well-known Auguste Perret, Le Corbusier and Andre Croize, were ready with well prepared plans for rebuilding large ruined areas. Perret and Le Corbusier headed reconstruction commissions in Le Havre and La Rochelle respectively. In Athens an underground staff of 250 who, during the war, mapped the destruction in Greece, prepared plans for rebuilding the country. These plans were shown in America by Constansio Doxiades, director of the Greek Department of Town Planning. The Greek government is taking advantage of great population shifts to put into operation a national master plan. Mexico had a building boom centering in Mexico City. Much

work in an alleged *moderne* style, lavishly employing colored native stone, resulted in rather sad results. Argentina planned to build 20,000 houses a year for the next 20 years. For a population of 14,000,000, this seems an ample program. Brazil continued to build, promoting among others a scheme for a great national stadium with facilities for all the sports popular in the nation. Architect Roland Rohn's new University of Basle, Switzerland, presented a modern, informal functional approach to the housing of a modern teaching institution. At Dornach a new concrete Catholic church by Herman Baur is likewise of thoroughly contemporary design. Baur's school and kindergarten in Basle also presents a functional but definitely human expression for an elementary school. In Sweden the New City Theatre and Concert Hall at Malmö attracted applause from laymen and architects alike. Sweden's beloved Ragnar Östberg, architect of Stockholm's matchless city hall, died on February 5; aged 78. The city hall had received the gold medals of both the Royal Institute of British Architects and the American Institute of Architects. In England the replanning of bombed-out cities was promoted. Manchester exhibited plans for the city and environs. The program calls for breaking the area into districts of 50,000 population each. For these districts complete civic centers, containing public halls, baths, library, health clinics, cinema, church, fire and police stations are planned. The county borough of Middlesborough held a town-planning show exhibiting one of the finest models of a town so far produced to illustrate modern principles of community development. Sir Giles Gilbert Scott produced designs for the new Coventry Cathedral. Designed to seat 1,000 people, it is definitely modern with echoes of the Gothic.

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ARCHIVES, National. See NATIONAL ARCHIVES.

ARGENTINA. A republic of South America extending from Bolivia to Cape Horn a distance of almost 2,300 miles, and having an area of 1,079,965 square miles, or 2,794,024 square kilometers. The areas of subdivisions in square kilometers are: federal district, 196; Isla Martín García, 2; Islas del Sur, 13,133; provinces, 1,584,004; territories, 1,196,689. Bounded on the north by Bolivia, northeast by Paraguay, Brazil and Uruguay, southeast and south by the Atlantic Ocean and Chile, and west by Chile, Argentina consisted of 14 provinces, 10 territories and one federal district until a decree of Sept. 24, 1943 abolished the territory of Los Andes and divided its area among the three neighboring provinces of Jujuy, Salta and Catamarca, thereby diminishing the number of territories to nine.

The population estimate of Dec. 31, 1943, was 13,909,950, including 10,986,636 Argentinos and 2,193,587 foreigners. Chief cities are Buenos Aires, the federal capital, with an estimated population on the same date of 2,457,494 (2,608,333 on April 30, 1945); Rosario, 522,403; Córdoba, 310,070; La Plata, 247,515; Avellaneda, 386,372; Tucumán, 157,926; Bahía Blanca, 115,148; and Santa Fé, 154,173. Since the middle of the 19th century the urban population has steadily increased in relation to the rural. While the census of 1869 indicated 33 per cent urban to 67 per cent rural, an official estimate of 1938 showed the urban percentage increased to 74, compared with a diminished rural percentage of 26. In 1944, for the first time in the country's history, emigration exceeded immigration, 3,713 persons leaving the country to 2,627 arriving.

Religion and Education.—Although the Roman Catholic religion receives state support, there is no state religion. There is complete freedom and tolerance of all creeds. Civil marriage was established in the country in 1888. By decree of Dec. 31, 1943, the teaching of the Catholic religion became a regular part of the curriculum in all primary, post-primary, secondary, and special schools, except when parents object on religious grounds.

In general there is free, secular and compulsory elementary education provided for children, of whom there are about 2,500,000, from 6 to 14 years of age. In 1943 there were 14,565 public primary schools, including 444 for adults. A census taken the same year indicated that of children between the ages of 6 and 13 there were 2,259,642 attending school, while 307,738, or 13.7 per cent of that number, were receiving no education. Minors in the age bracket 14 to 21 numbered 1,874,660, of whom 143,278, or 7.6 per cent, were illiterates. The census was tabulated by provinces and territories, and showed that the federal capital had the lowest illiteracy rate in the two age brackets, amounting to only 1.4 per cent. In 1941 secondary, normal, and special schools under the Ministry of Public Instruction numbered 718, with 135,456 students. Incorporated provincial secondary schools numbered 421, with 42,064 students. Universities are located at Córdoba, Buenos Aires, La Plata, Tucumán; the National University of the Litoral at Santa Fé, with branches in Rosario and Corrientes; and the National University of Cuyo at Mendoza. University students numbered 39,595.

Army and Navy.—Military service is compulsory in Argentina. On May 18, 1944 the government decreed that all high school boys should serve in the army for 12 months instead of 3 months as previously required, and on November 17 it declared citizens between the ages of 12 and 50 subject to military training. Boys and girls below 20 are to be given athletic training. Men between the ages of 20 and 22 are to receive military training, and girls between those ages are to form a "Women's Auxiliary Service." Post-military training is continued for those from 22 to 50 years of age. Married men with one dependent are exempt. All drafted workers are to be re-employed within 30 days after discharge, and half of their service pay comes from employers. Late 1944 figures indicate 2 Argentine armies, each composed of 6 divisions; 3 army air force squadrons, with 4 airbases; and 4 military institutes; a navy composed of 2 battleships, 3 cruisers, 4 coast defense ships, 15 destroyers, 3 submarines, 3 surveying vessels, 2 river monitors, 4 transports, 2 oilers, and 5 tugboats. There are 2 naval bases, 3 naval training schools, and a naval air force of 3 squadrons.

Communications.—There are 26,805 miles of railways of which 8,420 miles are government owned. This is approximately 43 per cent of the railroad mileage of South America. Nearly $6,000,000 was earmarked (1943) for railway construction in the Province of Mendoza, to connect existing lines with oil wells and coal mines in the region. But railways suffered from wartime restrictions on importation of steel and replacement parts, and from fuel shortage, coal being often replaced by wood, corn, wheat, and oilseed residues. Despite this fact, railroad construction

continued and on March 24, 1944 the Transandine Railroad was opened to traffic.

At the beginning of 1943 there were 32,787 miles of national highways and complementary roads, and 22,686 miles of rural roads. By June 30, 1943, government highways totaled 39,782 miles, and by the beginning of 1944, some 14,000 miles of highway were all-weather roads. During 1943, 2,140 miles of various types of roads were completed. By the end of 1943 nearly 200,000,000 pesos were earmarked for improvement and construction of highways. A highway link with Chile is available through the use of the Transandine Railroad tunnels. The Buenos Aires-Mendoza road, 1,114 kilometers long, is now paved. The four main arteries which represent Argentina's part of the Pan American Highway system are now open to traffic, and the main highway to Bolivia was almost completed at the close of 1943. The link to Paraguay was partly paved, and the artery connecting with Brazil was open to traffic. A road-paving project costing 25 million pesos was carried out in the municipality of Buenos Aires in 1944. Each year October 5 is designated by the government as "Highway Day."

Arrivals of seagoing vessels in Argentine ports during 1944 totaled 1,485 ships of 3,324,407 net register tons, compared with 1,334 vessels of 2,765,393 tonnage in 1943. In 1945, on the third anniversary of the creation of the State Merchant Fleet, it was announced that 27 ships, totaling 134,811 tons, had transported 2,552,446 tons of cargo, and had made 244 outbound and 223 return voyages.

There were in Argentina on May 1, 1945, 11 airports of customs entry, 40 public airdromes, 82 landing strips, 3 hydroplane bases and 11 landing fields. By decree of April 27, 1945 the government provided for preferential ownership and operation of all internal air transport services by the state, or by the state and private Argentine capital. In 1944 the airlines of Argentina (national and international) covered 3,103,027 kilometers in 13,602 flying hours. Passengers carried numbered 78,537; first class mail 106,279 kilograms; parcels 401,002 kgms.; and express 433,384 kgms. A new airport is being built at Buenos Aires for which 20,000,000 pesos was allotted in the 1945 budget.

Agriculture and Industry.—The nation's total area of 279,843,000 hectares (1 hectare = 2.471 acres) is subdivided as follows:

Use	Hectares	Per cent of total
Under cultivation	30,000,000	10.72
Forests	89,683,000	32.72
Lakes, lagoons and wide rivers	3,019,000	1.08
Salt marshes and swamps	2,390,000	.86
Railways	210,288	.07
Cities and towns	500,000	.18
Other unproductive areas, small rivers, canyons, mountains, etc.	38,000,000	13.58
Pasturage, natural and artificial	115,152,628	41.15

Land suitable for the cultivation of cereals amounts to 50,000,000 hectares; of cotton, 4,000,000 hectares; and for cattle and sheep ranges, 88,493,000 hectares.

The Ministry of Agriculture published statistics of the total number of livestock in the country as of June 30, 1945:

Item	Number as of June 30, 1945	Number as of June 30, 1937	Percentage increase over 1937 census
Cattle	34,010,300	33,207,287	2.4
Sheep	56,181,800	43,882,728	28.0
Hogs	8,009,700	3,965,945	102.0

The pampas, withered by one of the worst droughts in recent times and blackened by prairie fires, yielded disappointing crops of wheat, linseed, barley, and rye during the 1944–45 season. The linseed crop amounted to only 767,000 tons, the lowest yield since 1918 and insufficient for domestic requirements, since the oil is now being used as a fuel oil substitute and its export is forbidden. The wheat harvest amounted to only 4,249,300 tons, less by 2,550,000 than was previously estimated. Barley production dropped to 574,300 tons, less by 144,300 than estimated. More than half the rye crop was destroyed, leaving a yield of only 259,400 tons. However, during the August sowing season, weather conditions improved, although scant rainfall augured a small flaxseed crop and the government, to stimulate larger plantings, guaranteed a minimum price to farmers for the 1945–46 crop. In midsummer the Ministry of Agriculture made the following estimates in metric tons of crop productions for the 1944–45 season: corn 3,069,700; rice 141,150; sunflower seed 1,028,600; peanuts 158,400. In August the ministry published its first estimate of the 1944–45 cotton crop as 72,300 metric tons, also an estimate of the sugar crop as 5,772,720 metric tons, an increase of 4.7 per cent over the previous year.

A recent industrial development is the establishment of 20 factories in the Mar del Plata and Necochea areas beginning early in 1943 for the extraction of vitamin A from shark livers. A production of about 20 trillion units in 1944 placed Argentina second only to the United States in world production. Various by-products of shark-liver oil promise the development of new industries, and shark meat has found a local market.

Plans have been made for the erection of two factories as well as for expansion of the existing rayon plants at Berazategui. One of the factories will manufacture nylon while the other will make cellophanes.

Mining.—Argentina's mining industries are small and account for only a small fraction of the country's total industrial output. According to a 1941 survey of the Argentine General Office of Statistics, 374 of a total of 57,978 industrial establishments were engaged in mining, quarrying and oil-drilling; and these 374 establishments employed only 23,847 workers.

A very small part of the total mineral output is shipped abroad. In 1942 total mineral production amounted to about 9,000,000 metric tons valued at 79,000,000 pesos ($24,000,000), of which the exports were about 133,000 tons valued at 20,000,000 pesos ($5,600,000). During the war the government controlled all mineral exports.

Petroleum.—During the first six months of 1945 petroleum production reached 1,839,401 cubic meters, a decrease of 5.6 per cent compared with the corresponding period of 1944. Of this production, 1,238,840 cubic meters was from the state oilfields and 600,561 was from privately owned fields. It is estimated that the country contains a net oil reserve of 262,000,000 barrels of which 100,000,000 barrels will remain by 1950. A fuel shortage in 1944, continuing into 1945, was caused by lack of oil drilling equipment. Approximately 1,000,000 tons of linseed oil were used for fuel oil in 1944, and the necessity of employing this substitute caused the government early in 1945 to ban the export of linseed oil.

Finances.—The Farrell-Perón government's budget for 1945 amounted to 2,339,000,000 pesos, or 60 per cent more than was spent in

1942, the last complete year before the army revolution which placed it in power. Revenue for the year as forecast in mid-September was not expected to amount to much more than half this amount. Military expenses soared both actually and relatively, though Argentina took no active part in the war. In 1942 they amounted to 274,000,000 pesos, or 18 per cent of total expenditures; in 1945 they climbed to 947,000,000 pesos, or 39 per cent of the budget. Expenditures for public works in 1945 were set at a maximum of 343,326,000 pesos (approximately $100,000,000), about 7 per cent more than in 1944; but it will be noted that this figure is little more than a third of the sum devoted to military expenses. The Ministry of Education received a meager increase of 7,000,000 pesos; that of Justice and Public Instruction obtained an additional 18,000,000; that of Agriculture less than 2,000,000 more than in 1944.

The internal debt has progressively increased from 3,845,000,000 pesos in 1941 to 8,941,000,000 in 1945, occasioning severe criticism of the government's financial policy by the Bondholders' Corporation in its report for the biennial period ended June 30, 1945. The external debt (sterling, dollar and Swiss franc), however, showed a substantial decline in the period from June 30, 1944 to June 30, 1945.

Foreign Trade.—During the first half of 1945, Argentine foreign trade, exclusive of gold, dropped more than $54,000,000. It fell from 1,672,555,000 pesos in the first half of 1944 to 1,455,339,000 pesos in the first half of 1945, a decline of 217,216,000 pesos (1 peso = approximately 25 cents, United States currency). Exports dropped from 1,186,091,000 pesos to 988,354,000, a decline of 16.7 per cent. Imports dropped from 486,464,000 pesos to 466,985,000, a decline of more than 4 per cent.

Exports of linseed oil to the United States in 1944 amounted to 22,771,397 kilograms, compared with 29,771,425 kgms. the preceding year. The government embargo on export of linseed oil early in 1945 will be reflected in a still more drastic reduction in the total 1945 figure. Exports of casein increased from 15,022,000 kgms. in 1943 to 23,282,893 in 1944.

For the first five months of 1945, exports of cotton totaled 2,508 metric tons, compared with 3,227 in the corresponding period of 1944. More than 50 per cent of this export was absorbed by Chile, and most of the remainder by Uruguay, Bolivia and Cuba. During the period October 1944 to May 1945 wool exports totaled 95,533 bales, compared with 158,126 bales in the corresponding period of 1943–44.

Traditionally Britain has been Argentina's best customer, and consequently Britain has taken the lion's share of the export trade to that country. A 3-year trade agreement signed in 1936 was extended for the period of the war. By announcement of the United Kingdom's Board of Trade on Sept. 28, 1945, this pact was terminated as of Feb. 21, 1946; but continued meat shipments were provided for in a separate contract agreed on in principle. Britain's mounting unfavorable balance of trade appears in the following statistics. Britain's exports to Argentina in the first half of 1938 amounted to £9,669,000 and her imports from Argentina to £19,000,000. For the corresponding period of 1945 the British export figure dropped to £2,130,000, while imports increased to £20,502,000. As a consequence of the conclusion of the meat agreement it is expected that the amount of British imports will again rise sharply, perhaps to the neighborhood of the £41,000,000 which represented Argentina's sales to Britain for the first half of 1944.

Government and Principal Events

Briefly noted, the main features of Argentina's governmental organization and structure established by the Constitution of 1853 are as follows: The president, who by the constitution must be a Roman Catholic, is indirectly elected for a six-year term by a college of electors. He may not be re-elected without an intervening six-year period. The executive, administrative and legislative powers of the Argentine president are more numerous and much more comprehensive than are those of the president of the United States. This is partly due to constitutional grants of power and is partly based on constitutional development. The executive power is shared with a Cabinet of eight ministers and two heads of secretariats, who are appointed by the president. Senate confirmation of these and other important executive appointments is not required. The ministers are responsible to the president and not to the Congress ever though in past years they have appeared before the Congress for interrogation.

Legislative power is lodged in a Congress of two houses. The Senate of 30 members (2 from each of the 14 provinces and two from the federal capital), is elected by the provincial legislatures, also a copy of the original American practice. Their term is six years, and one third of the membership retires each two years. The Chamber of Deputies has 158 members, chosen by direct popular election (manhood suffrage only), for a four-year term, one half retiring each two years. The constitution provides for annual sessions running from May 1 to September 30, but it has been the practice of the Congress not to begin its legislative work until the president was ready to present the annual message. This has often delayed the opening of congressional sessions as much as three or four weeks. Of the 158 deputies 32 are elected from the city of Buenos Aires and 42 by the Province of Buenos Aires. This indicates in some degree the extent of control which Buenos Aires city and province exercise over the political affairs of the entire Argentine nation.

The judicial branch of the government is composed of a Supreme Court, which resembles that of the United States in both powers and organization, and inferior federal courts.

In normal times the provinces have a governmental organization, including executive, legislative, and judicial departments, closely resembling the government of an American state.

As a result of the military coup d'etat of June 4, 1943, the regular constitutional guarantees and the governmental organization described above were summarily suspended. The Congress was dissolved, all provincial and municipal governments intervened, and the totality of political power and authority was lodged in the military group which planned and carried through the revolution.

The actions and maneuvers, international and domestic, of the Argentine government during 1945 kept that country on the front page of the world press much of the time. The year began with attention on the international position of Argentina and closed with questions of domestic concern holding the center of the stage. During October 1945 Argentina experienced both a revolution and a counterrevolution, violent and to

some extent bloody, and at the time of writing (October 1945), there are many indications that significant and perhaps violent changes may yet occur.

As noted in the 1945 AMERICANA ANNUAL, the Argentine government, late in 1944, requested that the Pan American Union examine the Argentine "situation" in an attempt to ascertain whether or not that country was living up to its inter-American obligations and commitments. This examination precluded, however, any discussion of domestic policy or action, so often the cause of the failure of that government to comply with what was believed by many American nations to be its inter-American responsibilities. Certain events of December 1944, occurring too late to be included in last year's summary, need noting to provide background for later developments. On Dec. 16, 1944 the government by decree adopted a new military conscription program that applied to all males between the ages of 12 and 50. This naturally caused apprehension among many of Argentina's neighbors; Colonel Perón later explained that boys of 12 to 18 would get only physical training in the schools, but under army direction. In the same month a strike occurred among workers of the government oil plant at La Plata. It was called as a protest against the jailing of labor leaders and the secretary of labor, (Perón) had to threaten use of naval personnel in order to break this stoppage. Late in December the three commissioners to draft the "statute of political parties" were named, all judges of moderate and supposedly democratic views. Finally, at the end of 1944 there was formed at Montevideo the so-called Patria Libre (Free Fatherland) Committee of 4 members, one representative from each of the four political parties, Conservative, Radical, Socialist, and Communist.

On Jan. 8, 1945, the Pan American Union voted to reject the Argentine request for a consideration of her case, only the Argentine delegate voting in the affirmative. On the same date it was announced that there would be a meeting of the foreign ministers of the American republics at Mexico City on Feb. 15, 1945 (later postponed to February 21) to discuss war and postwar problems. Argentina was not to receive an invitation to attend. One week later General Peluffo, the foreign minister and the last of Perón's opponents in the Cabinet, resigned over "differences on policy." It was known that he opposed Perón's saber-rattling tactics. On January 29 the government promulgated the Security of the State Decree, banning strikes and other acts against the authority of the state, regulated public meetings to the point of prohibiting them except under unusual circumstances, and subjecting the press to further controls.

The Conference of the American Republics on Problems of War and Peace opened at Mexico City February 21, with neither Argentina nor El Salvador invited to attend. It was obvious that despite its absence Argentina would play an important role. On February 9, perhaps with the conference in mind, the government announced that the "phase of pre-electoral organization" had been entered and 70 school teachers dismissed at earlier dates were reinstated. Late that month many of the professors dismissed for pro-democratic views or writings were reinstated, and two of the ultra-nationalistic dailies of Buenos Aires were closed. On February 26, Colonel Perón made the enigmatic statement to the press that he had long favored friendly relations with Russia, just three months after his incendiary anti-communistic speech before the Chamber of Commerce of Buenos Aires.

The conference at Mexico City took two important steps with reference to Argentina. One was the so-called Act of Chapultepec, by which the American republics agreed to aid each other against aggressive acts even though made by an American state. This proposal, obviously aimed at Argentina, was introduced by Brazil, Colombia, and Uruguay. The second step, March 19, was the declaration intimating that Argentina could re-enter into the good graces of the American states if it would "co-operate with the other American nations by identifying itself with the common policy." Exactly one week later Perón secured the declaration of war against Germany (in February of 1945 he stated in a press interview that Argentina would not take this step inasmuch as it would make her the laughing stock of the world), and the government instituted a few measures to implement this declaration. The Nationalist Alliance was closed, the crew of the *Graf Spee* was really interned, German language papers were closed—including at least one that had been consistently anti-Nazi, Fritz Mandl was arrested (to be released shortly), and the munitions firm in which he was interested was intervened. On March 31 the Pan American Union resolved that Argentina could sign the Declaration of Chapultepec, which she did on April 4. Venezuela recognized the Farrell government on April 8, and on the following day it was recognized by the United States and the other American republics. The Argentine government, however, continued to have internal difficulties. While the declaration of war was approved of by perhaps a majority of the Argentine people, the most of these felt that a government that had shown itself to be so reluctant to aid in the cause of the United Nations could not take such a step with either grace or honor. Another strike occurred, this time involving 20,000 packing plant workers and a number of dock workers. It was in protest against the failure to live up to an oft repeated promise to release political prisoners.

Mr. Spruille Braden was appointed as United States Ambassador to Argentina on April 19. Despite the fact that Argentina was at war with Germany, a police edict forbade any celebration of the fall of Berlin, and forbade the newspapers to use their sirens or eight column heads to announce the event. Late in April, claiming a wide-spread plot against the government led by General Espindola, a new wave of arrests took place. Over 400 persons were rounded up and jailed, among them many representative leaders of Argentine intellectual and social life.

Early in May, Argentina once again made international news over the question of her admission to the United Nations Conference at San Francisco. On May 7, Russia's Foreign Minister Molotov made his speech against this proposed action, asked for a delay, and to support his stand cited remarks of the late President Roosevelt and former Secretary of State Hull on the Fascist nature of the Argentine government. Only three states supported the Russian position and Argentina was admitted, a step that clearly strengthened the government internally and weakened and demoralized any opposition. Apparently heartened by this very favorable action, the government, late in May, increased the tempo and vigor of its campaign against all opponents within the country. A new wave of arrests took

place, the press was threatened and even more closely regulated, both of which measures were in violation of at least the spirit of the Act of Chapultepec. Arnaldo Cortesi of the New York *Times* reported to his paper on May 30 that the actions of the Argentine government exceeded anything he had seen during his 17 years' stay in Fascist Italy. This time the opposition, which had supporters among almost all economic groups within the nation, fought back. On June 16 there was published as a full-page advertisement in most Argentine dailies a declaration originally signed by 319 representatives of Argentine business, industry, farm groups, and labor. Many other groups adhered to this declaration in the succeeding days. It accused Perón of fomenting class hatred and of embarking upon unwise and dangerous economic policies. Incidentally, at about this same time the Treasury announced that the deficit for 1944 was 1,006,600,000 pesos, the largest in Argentine history. This gave credence to the claims made by José Aguirre Camara, in his widely circulated underground pamphlet, *Demagogues, Inflation, and Armaments* (published December 1944), that the military plans and expenditures of the government would bankrupt the nation.

These moves of the opposition did have some effect. Late in June it was announced that political prisoners would be freed, and many were. Many of the Montevideo emigrés were allowed to return to Argentina; they were given noisy and enthusiastic welcomes upon their arrival at the Buenos Aires port. It was again announced that press controls would be lifted. It also became more evident at this time that a significant number of army officers were opposed to Colonel Perón's plan of using the army as a stepping stone into the presidency. Perón's statement to the press of July 3 perhaps referred to this when he said, "I have enough forces in the army and in the army of labor to put down any insurrection."

The failure of Argentina really to implement her declaration of war against Germany was referred to late in June by Assistant Secretary of State William Clayton. Testifying before a Senate military affairs subcommittee he reported that little had been done to control about 104 Axis firms in Argentina, except to note that "four were in process of elimination."

On June 18 the students of the National University at Santa Fé (who in July and August of 1943 were among the most consistent and vigorous opponents of the then newly emerging dictatorship) organized a demonstration supporting the restoration of constitutional government and individual liberty. Nearly 500 were jailed and this touched off student demonstrations in all Argentine universities. A 24-hour strike was called for and held on June 28, in which many high schools joined. Many of the professors openly expressed their sympathy with the aims of the students. On July 6, the students of the University of Buenos Aires adopted a resolution asking the dismissal of all professors known to have antidemocratic views.

In the face of this mounting opposition and pressure the government again acted. On July 16 President Farrell announced that free elections would be held "before the end of the year." Almost coincident with this announcement there was held a meeting of the Radical Party at the town of Nuéve de Julio, located about 200 miles from Buenos Aires. Although political party meetings had been banned since December 1943 under the decree abolishing all parties, it was reported that this meeting was allowed on the suggestion of Admiral Teisaire, acting minister of interior, who believed that the party would not oppose the government and might even vote its support. Such an appeal undoubtedly would have influenced Colonel Perón who was seeking the backing of a legitimate party in his campaign for the presidency. The meeting turned out to be one in which the government was bitterly denounced. Eduardo Teisaire, a Radical Party leader and brother of the admiral, was quoted as saying "There are no Argentines in government house." An ironic note was added to this disturbed internal and international situation late in July when a German submarine surfaced in Argentine waters to surrender to Argentine authorities. Some in Brazil believed it to be the submarine that sank a Brazilian naval vessel in the last days of the European war.

Ambassador Braden, who by his public speeches had gained an enormous popularity among Argentine democratic forces, was made the object of a bitter smear campaign in late July and early August by Argentine Nationalists. He was accused of being an advance agent of intervention, and was falsely linked to the Braden Copper Company of Chile, which had recently experienced a mine disaster in which several hundred lives were lost. Almost 400 Argentines published a manifesto branding this campaign as an attempt to sow discord, mistrust, and hate.

Colonel Perón continued with his plans to obtain the backing of a political party for his presidential ambitions, and made some overtures to the Radicals. This caused the party to adopt a resolution which provided for automatic expulsion of any member that collaborated with the government in any way. A group of army and navy officers visited with General Farrell and expressed their approval of the plan to call elections and their strong disapproval of Perón's candidacy. On August 1 a declaration signed by the rectors of the six national universities denounced this candidacy. The lifting of the "state of siege," in effect since December of 1941, was announced by the acting minister of interior, Hortensio J. Quijano, (an expelled Radical) in late July. The Statute for the Security of the State, which gave the government almost the same controls, was still in force however.

The surrender of Japan was a signal for demonstrations and counterdemonstrations in August. The Nationalists rioted in front of the paper *Critica*, and although property was damaged and destroyed, the police made no real effort to restrain the group. On August 25, Nelson Rockefeller resigned as assistant secretary of state and the same day Ambassador Braden was nominated for the post. He was reported as saying that "my policy respecting Argentina and the United States will not alter in the slightest." This shift in our State Department without any doubt deeply affected the trend of events in Argentina. Mr. Braden's views were widely known in Argentina, and many Argentines associated Mr. Rockefeller, rightly or wrongly, with the move to admit Argentina to the San Francisco Conference.

Another strike of university students occurred on August 20, a protest against the continued wave of arrests and invasions of personal liberty. The government countered by dismissing 24 professors. On August 24, the foreign minister and the minister of finance resigned, and two expelled members of the Radical Party were named

to their posts. The Supreme Court made another assertion of its independence in its opposition to the government on August 31. It annulled the sentences against General Espindola and 11 others that were imposed by the War Council for complicity in the alleged plot of April 1945.

On September 5, the correspondent of the New York *Herald Tribune* reported that Colonel Perón was holding conferences with Radical Party leaders in the province of Córdoba. He also stated that Perón would resign his posts as minister of war and secretary of labor, to be replaced by Gen. Eduardo Avalos and Col. Domingo Mercanté. Perón did announce his formal candidacy for the presidency to an army officer reunion in early September. In mid-September the new foreign minister stated that Argentina would proceed against German firms in Argentina, and that it would lift press restrictions.

The March for the Constitution and For Freedom was staged in Buenos Aires on September 19, and an estimated crowd of 400,000 took part despite the efforts of the government to prevent the gathering. On September 24, there was published an open letter signed by 42 navy admirals and captains demanding immediate return to constitutional government. The next day the government announced the discovery of another plot against the regime in the province of Córdoba, headed by General Rawson and Luciano Molinas, ex-governor of Santa Fé province. This was the excuse given for the reinstitution of the "state of siege" the next day. A large number were arrested, including two former foreign ministers, and members of the directing staffs of both *La Nacion* and *La Prensa*. These acts, in turn, led to further student protests and demonstrations; it was at this time that the students of the University of Buenos Aires staged their widely publicized sit-down strike in the university buildings. On October 5, affected perhaps by the disturbed situation in Argentina, it was announced that the meeting of the foreign ministers of the American republics, scheduled at Rio for October 21, had been postponed.

Army officers, mainly younger officers with the rank of major or below, began to arrive in Buenos Aires by plane from all parts of the country on October 8. The next day General Avalos, commander of the garrison at Campo Mayo, just outside of Buenos Aires, moved troops on the city. No resistance was encountered and that afternoon it was announced that Perón was deposed, and that a new government would be formed at once. Despite his ouster Perón addressed a large labor gathering outside of the offices of the Secretariat of Labor the following day. That evening he was placed under arrest, although his detention proved to be a short one.

The new military group headed by General Avalos differed over one fundamental policy, a difference that gave Perón the opportunity to stage his comeback. Part of the group, General Avalos among them, wished General Farrell to continue as president until the elections could be held. Others favored turning the government over to the Supreme Court, which could act as an interregnum governing agency. The view of General Avalos prevailed but, given the attitude of the political parties and most of the opponents of the military regime, it meant that the government could not count on their collaboration nor their co-operation. These groups had stated more than once that they would accept posts only in a democratically chosen government. On October 12, it was announced that elections would be held on April 7, 1946, and on the following day Generals Farrell and Avalos, with Admiral Lima, constituted themselves as a sort of governing triumverate. This alienated all who wished to see a democratic government at once, and paved the way for the return of Colonel Perón. He was back in control on October 17.

A demonstration of workers was held in the Plaza de Mayo on the afternoon of the 17th, at which there was an attendance of perhaps 50,000. It should be recalled that as Secretary of Labor, Perón followed a policy of organizing unions personally, and restricting unions that reflected the real will of the members. This, of course, gave him a labor following. It must also be stated that regardless of the reasons behind his actions he had secured the adoption of measures that attempted to better the economic position of labor in Argentina, both urban and farm workers. The demonstration at the Plaza closed with General Farrell and Colonel Perón embracing each other; there followed shortly thereafter the resignation of the Avalos government. On the next day Colonel Perón resigned from all of his governmental posts, and since then he has directed all of his attention to his campaign for the presidency. Although out of the government officially he, of course, controls it.

On October 23 he appeared at the ceremony of the new government's inauguration at which his close personal and ideological friend, Gen. Juan Pistarini was sworn in as vice president, Perón's old post. At the ceremony the new minister of interior stated that the elections would be held as earlier announced, that they would be free, and that they would be administered by the army, the navy and the air force.

The political views of the new government are in part indicated by others who attended the ceremony. Among them were Enrique Oses, formerly editor of the ultra-nationalistic and openly pro-Axis paper *El Pampero* (later *El Federal*); Manuel Fresco, former governor of Buenos Aires province and a widely known nationalistic leader; and Carlos Ibarguren, author and biographer of the 19th century dictator Rosas.

As noted earlier, the situation on November 1 was far from resolved. It seemed unlikely that the democratic forces which took part in so many of the movements noted here would remain politically quiescent for long. Repercussions were expected to take place in Argentina as the result of the ousting of Vargas in Brazil at the end of October, as well as of the recent confirmation of Mr. Braden as assistant secretary of state by the United States Senate. As is known, Mr. Braden's views and position were given an airing in the Senate hearings.

Other international events and international organizations will also play a significant role. As this article went to press the news arrived that on Oct. 31, 1945 the delegates representing Argentine labor to the Paris meeting of the International Labor Organization (not the government nor the employer representatives) were barred from the meetings by unanimous action of the delegates on the ground that they did not represent Argentine labor but were hand picked by the Secretariat of Labor. Argentina's domestic problems continue to make her front page news in the international scene.

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ARIZONA. Mountain state, United States; admitted to Union Feb. 14, 1912. Population (1940): rural 325,280; urban 173,981; total 499,261. Land area, 113,580 square miles, divided into 14 counties. Chief cities, with 1940 populations: Phoenix, the capital, 65,414; Tucson, 36,818.

Chief State Officers, 1945.—Governor, Sidney P. Osborn; secretary of state, Dan E. Garvey; treasurer, William T. Brooks; auditor, Ana Frohmiller; attorney general, John A. Sullivan.

Judiciary.—Chief justice, Arizona Supreme Court, Rawleigh C. Stanford; associate justices, Arthur T. LaPrade and Joseph H. Morgan.

Legislature.—The state legislature (Senate, 19 members; House of Representatives, 58) convenes biennially in odd years on the second Monday in January.

Education.—Public elementary schools (as of May 28, 1945), 466; teachers, 2,694; pupils, 91,893; average yearly salary of elementary school teachers, $1,705. Public senior high schools (as of May 28, 1945), 81; teachers, 942; students, 20,435; average yearly salary of senior high school teachers, $2,160. All public schools in Arizona are open to pupils between the ages of 6 and 21 years, inclusive; education is compulsory for those between the ages of 8 and 16, inclusive. There are 5 teacher training schools in the state. State per capita aid apportioned to counties for direct use (1943–44), $6,217,553; state moneys paid direct to school districts for vocational education programs, teachers salaries, current expenses (1943–44), $16,426. Superintendent of public instruction, E. D. Ring.

Finances.—The following figures were furnished by William T. Brooks, Arizona's state treasurer:

Balance (general fund), July 1, 1944	$ 6,002,587.57
Receipts, 1944–45	8,858,331.42
Transfers to general fund, 1944–45	4,851,336.46
Expenditures, 1944–45	12,310,162.67
Returned checks	13,636.17
Transfers from general fund, 1944–45	3,351,625.53
Balance (general fund), June 30, 1945	4,036,831.08

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1, estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bus.)	411	361	437
Oats (1,000 bus.)	219	319	416
Wheat (1,000 bus.)	844	528	550
Barley (1,000 bus.)	1,159	2,812	2,508
Sorghums for grain (1,000 bus.)	85¢	2,176	1,802
Flaxseed (1,000 bus.)	315	456	304
Cotton (1,000 bales)	185	136	135
Hay:			
Alfalfa (1,000 tons)	448	628	585
Tame (1,000 tons)	539	783	729
Beans, dry edible (1,000 bags)	56	64	66
Potatoes (1,000 bus.)	327	1,342	1,365
Grapefruit (1,000 boxes)	2,550	3,750	4,400
Oranges (1,000 boxes)	502	1,150	1,240
Grapes (tons)	920	1,500	1,000

ARKANSAS. West South Central state, United States; admitted to the Union June 15, 1836. Population (1940): rural, 1,517,477; urban, 431,910; total, 1,949,387. Land area, 52,726 square miles, divided into 75 counties. Principal cities, with 1940 populations: Little Rock, the capital, 88,039; Fort Smith, 36,584; Hot Springs, 21,370.

Chief State Officers, 1945.—Governor, Ben L. Laney; lieutenant governor, J. L. Shaver; secretary of state, C. G. Hall; treasurer, J. Vance Clayton; attorney general, Guy E. Williams.

Judiciary.—Chief justice, Arkansas Supreme Court, Griffin Smith; associate justices, Frank G. Smith, E. L. McHaney, J. S. Holt, R. W. Robins, Ed F. McFaddin, Minor Millwee.

Legislature.—The state's General Assembly (Senate, 75 members; House of Representatives, 100) meets biennially in odd years.

Education.—Public elementary schools (1944), 3,894; teachers, 8,644; pupils, 311,255; average yearly salary of elementary school teachers, $721. Public high schools (1944), 719; teachers, 3,657; students, 100,066; average yearly salary of high school teachers, $1,060. Education in Arkansas is compulsory for all children between the ages of 7 and 15, inclusive. There are two teacher training schools in the state, and one college for Negroes. Total state appropriation for education (1944), $13,391,997; appropriation by cities and counties (1944), $8,695,146. Commissioner of education, Ralph B. Jones.

Finances.—The following statement of finances for the fiscal year 1944–45, was supplied by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$ 32,492,619.99
Receipts, 1944–45	63,878,968.68
Total	$ 96,371,588.67
Transfers to all funds	45,133,628.26
Total	$141,505,216.93
Transfers from all funds	45,162,885.24
Total	$ 96,342,331.69
Disbursements, 1944–45	61,326,058.24
Balance, beginning of fiscal year 1945–46	$ 35,016,273.45

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1, estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bus.)	33,844	32,300	34,722
Oats (1,000 bus.)	5,464	9,405	8,559
Wheat (1,000 bus.)	516	588	483
Barley (1,000 bus.)	126	170	162
Sorghums for grain (1,000 bus.)	150	144	119
Rice (1,000 bus.)	9,537	14,469	14,352
Cotton (1,000 bales)	1,322	1,394	1,300
Hay:			
Alfalfa (1,000 tons)	163	191	187
Tame (1,000 tons)	1,075	1,266	1,399
Wild (1,000 tons)	163	171	186
Soybeans for beans (1,000 bus.)	1,139	3,612	3,875
Peanuts (1,000 lbs.)	9,050	6,000	4,800
Pecans (1,000 lbs.)	3,585	4,200	5,040
Sweet potatoes (1,000 bus.)	2,122	1,955	1,805
Potatoes (1,000 bus.)	3,278	3,196	2,394
Apples (1,000 bus.)	753	568	312
Peaches (1,000 bus.)	2,061	2,646	2,967
Pears (1,000 bus.)	172	228	231
Grapes (tons)	8,430	10,600	4,700

ARMENIAN SOVIET SOCIALIST REPUBLIC. See UNION OF SOVIET SOCIALIST REPUBLICS.

ARMY AND NAVY POSTWAR EDUCATIONAL PROGRAMS. See EDUCATION, REVIEW OF.

ARMY EMERGENCY RELIEF. Organized and incorporated under the laws of the District of Columbia, Feb. 5, 1942, to render emergency financial assistance to army personnel, regardless of rank, who are on extended active duty, and their dependents, regardless of relationship. This organization is officially connected with the War Department. Army personnel located at posts, camps, and stations may apply to the local AER officers or the Red Cross field directors, while their dependents located in communities may ap-

ply to the nearest Red Cross chapters for such assistance.

HENRY H. DUVAL,
Colonel, United States Army.

ARMY OF THE UNITED STATES. Just before Germany's surrender the War Department announced that the army had reached a strength of 8,300,000. Since this total included the sick and wounded in army hospitals and men in process of rotation from combat theaters, the strength of the army in terms of military effectives was actually less than the previously planned maximum of 7,700,000. At the peak of deployment against Germany and Japan in 1945, approximately 66 per cent of the army was overseas. Of the overseas forces, about 3,500,000 men were in Europe on V-E Day. The others were deployed on all of the other continents and on island outposts from the tropics to the Arctic.

In the early stages of the war, the allied strategy had been to deploy to the Pacific forces sufficient to contain the Japanese advance and prevent a threatened junction of the Axis powers. It was considered essential to destroy German military power before turning the combined might of the Allies to the crushing of Japan. Hence the bulk of the army's combat forces had been sent across the Atlantic. With our Allies, they had by the fall of 1944 knocked Italy out of the war and driven the Germans out of Africa, Sicily, most of Italy, all of France, Belgium and Luxembourg and southern Holland.

Following the failure of a strong German counterattack in the Ardennes in December 1944 (See WORLD WAR, SECOND), the heavy assaults of the Western Allies and the massive attacks of the Red Army against the German front in the east made it abundantly clear that the end of Germany's military domination of Europe could not be long delayed.

Meanwhile, the limited American forces in the Pacific, with their British and Chinese Allies on the Asiatic mainland, had more than performed their mission of stopping the Japanese advance. Starting with Guadalcanal in the Solomons and the arduous New Guinea campaign, Americans, Australians, and later Dutch forces had destroyed or neutralized the Japanese garrisons in the Aleutians, the Marianas, the Carolines, and parts of the Dutch and British East Indies. The taking of Guam and Saipan in the summer and fall of 1944 had opened the road to the Philippines and supplied air bases for the B-29 bombers which were laying Japanese war industry in ashes. With the liberation of the Philippines under way, the assault moved into Japan's inner defenses. Iwo Jima fell to the United States Marines in March 1945, and Okinawa was taken by a combined Army-Marine Corps task force in June.

Anticipating long and determined resistance by undefeated Japanese armies numbering several millions, the army in May 1945 bent all its energies to redeployment from Europe to the Pacific. At the same time demobilization was begun, with the announced objective of discharging 1,300,000 enlisted and commissioned personnel within twelve months. Preference in discharge was given to men with the highest point scores in an army-wide rating based upon length of service, overseas service, combat credit including decorations, and number of children (up to three) under eighteen years of age.

While redeployment was in full swing, a series of momentous events resulted in the surrender of Japan. The growing destruction of Japanese war industry by bombing, the preparation of a mighty invasion force, and a shortage of food and raw materials due to naval and air blockade had prepared the Japanese High Command for desperate measures. The dropping of two atomic bombs by Army Air Forces planes on Hiroshima and Nagasaki together with the Soviet declaration of war on Japan, supplied the final push which resulted in the signing of the Japanese surrender instrument in Tokyo Bay on Sept. 2, 1945. With the ending of hostilities, occupation of Germany and Japan and demobilization of surplus personnel, became the principal missions of the army.

Organization and Administration. — The War Department was guided through the war by Henry L. Stimson, Secretary of War, assisted by Robert P. Patterson, Under Secretary (now Secretary) of War; John J. McCloy, Assistant Secretary of War; Robert A. Lovett, Assistant Secretary of War (Air); and by numerous military and civilian officials who complete the personnel of these and other secretarial offices. Under the Secretary of War was the Chief of Staff, General of the Army George C. Marshall. He was assisted by the Deputy Chief of Staff, Gen. Thomas T. Handy, and by the War Department general and special staffs. The five assistant chiefs of staff on the General Staff are: Maj. Gen. Stephen G. Henry, G–1; Maj. Gen. Clayton Bissell, G–2; Maj. Gen. Idwal H. Edwards, G–3; Maj. Gen. Russell L. Maxwell, G–4; and Lieut. Gen. John E. Hull, Assistant Chief of Staff in charge of Operations.* Besides other divisions, the Special Staff includes the offices of the Legislative and Liaison Division headed by Maj. Gen. W. B. Persons; the Civil Affairs Division headed by Maj. Gen. J. H. Hilldring; the War Department Manpower Board headed by Maj. Gen. C. H. Bonesteel; and the office of the Inspector General headed by Lieut. Gen. Daniel I. Sultan. Additions to the Special Staff are the Special Planning Division and the New Developments Division. The former is concerned with duties and functions which relate to planning for postwar military and related industrial demobilization. The latter is concerned with the innovation, development, and application of new weapons, devices, and techniques of military value. Since the establishment of the Civil Affairs Division in the Office of the Chief of Staff on April 7, 1943, close co-operation has been maintained between it and the Operations Division of the War Department General Staff, the commanding generals of theaters of operations, and the Army Service Forces. In addition to the School of Military Government at Charlottesville, Va., since 1943 courses in military government have been carried on for military personnel at Yale, Harvard, Northwestern, and Leland Stanford universities, and at the universities of Michigan and Chicago. The War Department Manpower Board, established in January 1943, scrutinized the nation's employment of manpower and made recommendation for the correction of misuses of manpower and the elimination of unnecessary jobs. The Budget Division, which supervises all War Department and army budgetary matters; the National Guard Bureau, which is the War Department administrative agency for the National Guard and the State Guards;

* On each general staff there are four "G's," officers who are directly in charge: of personnel (G-1), of intelligence (G-2), of plans and training (G-3), and of supply (G-4).

and the Office of the Executive for Reserve and ROTC Affairs, also belong to the Special Staff.

Since the reorganization of the War Department and the army in 1942, the army's air, ground, and supply divisions have been progressively welded into the most effective and best equipped military force in the country's history. Under the direction of the Joint Chiefs of Staff, headed by Fleet Admiral William D. Leahy as chief of staff to the commander in chief, operations of the army and navy have been more closely co-ordinated than at any time in our history. The Joint Chiefs of Staff have represented the United States in the co-ordination of American striking power with that of fighting elements of the other United Nations under presidential directives. The services have been represented on the Joint Chiefs of Staff by Generals of the Army G. C. Marshall and H. H. Arnold and Fleet Admiral E. J. King.

Under General Marshall's direction, domestic operations of the army have been conducted under Army Air Forces, Army Ground Forces, and Army Service Forces, which were commanded at the close of hostilities by General of the Army H. H. Arnold, Gen. Jacob L. Devers, and Gen. Brehon Somervell respectively. Following the assignment, equipping, and training of troops for overseas service, they passed from the control of these commands to that of the theater of operations, task force, overseas base, or defense command to which they were assigned. The commanders of these latter headquarters are under direct War Department control.

Army Air Forces directs the development and expansion of all phases of the army air arm. Army Ground Forces include the Infantry, Cavalry, Field Artillery and Coast Artillery, together with such newer commands as the Armored Command, the Tank Destroyer Command, the Airborne Command, and the Antiaircraft Command. In Army Service Forces are grouped the technical services—Quartermaster Corps, Ordnance Department, Chemical Warfare Service, Corps of Engineers, Signal Corps, Office of the Surgeon General, and the Transportation Corps, together with such staff divisions as the Office of the Adjutant General, the Office of the Judge Advocate General, the Special Services Division, Office of the Fiscal Director, and Office of the Chief of Chaplains.

Under the Commanding General of the Army Service Forces function the nine service commands which perform the administrative and housekeeping tasks of the vast military establishment in the United States, together with the Northwest Division with headquarters in Whitehorse, Yukon Territory. In the headquarters of the commanding general of the Army Service Forces are additional staff divisions through which the vast procurement program of the army is directed and administered. Under his command also functions the Provost Marshal General who directs the Corps of Military Police, the prisoner of war information bureaus, and the training of Allied Military Government personnel.

Army Air Forces.—The president's directive of 1942 assured a centralization of all aviation components under a single head, General of the Army Henry H. Arnold. His general staff, roughly comparable to that of the War Department, consists of: A–1 (Personnel), A–2 (Intelligence), A–3 (Operations, Commitments, and Requirements), A-4 (Matériel and Services), a Plans Division and a Training Division. On Aug. 22, 1945 the numerical strength of the Army Air Forces was announced by the War Department as approximately 2,300,000.

Army Air Forces statistics for an eight-week period in one theater present a striking example of the scope of our air operations. It has been estimated that between D-Day, June 6, 1944, and July 30, 1944, our bomber losses were approximately 2 per cent and our fighter losses approximately 1 per cent. (Bomber losses during late winter and spring (1944) had run between 3 and 4 per cent.) During the same period our air forces dropped 61,872 tons of bombs on strategic targets in Germany, Austria, Poland, Czechoslovakia, Hungary, Rumania, Bulgaria and Albania. In these raids we lost 601 of our bombers and 196 of our fighters, and destroyed 1,391 enemy aircraft in the air.

Army Ground Forces.—The present triangular division is organized into three regimental combat teams, each team consisting of an infantry regiment directly supported by a battalion of light field artillery (105 mm. howitzers). A fourth field artillery battalion (medium—155 mm. howitzers) lends general support to all three combat teams or performs specific missions as directed by the division artillery commander. The Garand rifle has replaced the Springfield and Enfield rifles as the basic infantry weapon. New and more powerful machine guns and new weapons such as the carbine, submachine gun, mortar and bazooka vastly increase the fire power of the infantry division. The general employment of 105 mm. howitzers in place of the old 75's as the light element of the division's artillery adds considerably to the division's punch.

Technical improvements in the design of our tanks, in their speed, resistance to enemy fire, maneuverability and fire power, have produced some of the best armored vehicles in the world. Among these are the M–4, medium and the M–5, light. In his address to the House of Commons, Aug. 2, 1944, Prime Minister Churchill paid high tribute to the American M–4 (Sherman) tanks: "In the hands of our troops," he said, "the Sherman tank has maintained its reputation gained in Africa, at every stage in battles in Italy and Normandy . . . we succeeded in mounting a 17-pounder gun on the Sherman—a remarkable feat—I saw with my own eyes an example of the work of the 17-pounder. Generals Montgomery and Dempsey brought me to the spot and invited me to count the broken down Panther (German) tanks which were littered about. I counted nine in the space of about a thousand yards. The generals told me that all these nine had been shot by the 17-pounder of one British Sherman tank. . . ."

Despite occasional successes such as that mentioned by the Prime Minister, the proved folly of pitting tank against tank resulted in the development of the tank destroyer and, in this country, of the Tank Destroyer School at Camp Hood, Texas. The tank destroyer, which in physical outline and general appearance bears a striking resemblance to the tanks it is designed to destroy, is a lightly armored, heavily armed vehicle capable of great speed and great maneuverability. The M–10 is a full-track vehicle the main fire power of which is a three-inch gun. The M–3 is an armored half-track mounting a 75 mm. gun.

The basic training of enlisted men and the training of officer candidates for the ground forces are accomplished in the various replacement training centers, specialist schools and officer

candidate schools which come under the jurisdiction of the Replacement and School Command.

The Antiaircraft Command is charged with the responsibility of guarding against, spotting, warning of the approach of, and combating enemy aircraft.

Army Service Forces.—The most variegated section within the army is the Army Service Forces, as is indicated under the subheading *Organization and Administration* in this article. The heroic and almost miraculous achievements of our Engineer, Transportation, Quartermaster and Medical Corps are a matter of common knowledge. The accomplishments of our Signal Corps, Chaplains, Special Services Division, in fact the accomplishments of all elements of the Army Service Forces are themselves the highest tribute to the individual soldiers, officers and civilian employes concerned and to the success of the reorganization which grouped these diverse elements under one head.

Despite the magnitude of the production problems that had to be solved in equipping our forces, on Aug. 10, 1945, the third anniversary of the presentation of the first Army-Navy "E" Award, it was announced that the award had been granted to 4,044 plants. Production levels which had mounted sharply in 1943 maintained a satisfactory level in 1944 and reached a peak early in 1945. Deliveries in 1944 were valued at 23.5 billions. Production figures have been in sharp contrast to figures established in the First World War.

During the First World War we produced a total of 132,000 machine guns; in two months of 1943 we produced 150,000 machine guns and 132,000 submachine guns. In 1918 we were producing small arms ammunition at the rate of 278,000,000 rounds a month. As the two-front war reached its climax of fury, we were producing this amount about every week. We were producing more than 18,000,000 artillery shells a month, as compared with 2,700,000 a month during the First World War. During the First World War we produced only 80 tanks. In 1943 we produced 5,000 tanks in a two-month period. We were making the Garand rifle at the rate of more than 80,000 a month and we were making more than 419,000 aircraft bombs a month.

However, the problem was not merely to supply our own soldiers with arms and equipment, but to supply also the armies of Britain, Russia, China and the numerous governments in exile.

The movement of supplies and equipment from the United States to the fighting fronts was a task ranking in size and importance with combat operations and war production. For every one of the more than five million men who had been moved overseas at the peak of deployment, it was necessary to transport initial equipment and supplies weighing five tons. Continuing maintenance after arrival in the theater averaged one ton per man per month. These supplies traveled 4,200 miles to Naples, 8,200 miles to Basra, 10,000 miles to Calcutta, and 6,200 miles to Brisbane. From San Francisco to the Southwest Pacific the average round trip required 129 days. The success of Army Service Forces in delivering the product of American industry to the fighting fronts, in sufficient quantity and on time, was unquestionably one of the vital factors in victory over the Axis.

Women's Army Corps (WAC).—See under that heading.

Personnel.—By May 1945 our army was over twice the size of the one we developed for the First World War. When that war ended we had an army of 4,057,101 officers and enlisted men of whom 2,086,000 were serving overseas, the majority in France. In May 1945 the comparable figures, including female personnel, were 8,291,336 and 5,472,282.

An executive order of December 1942 put an end to army enlistments and directed that the induction of men over 38 years old be ended. Prior to this order Congress had authorized the induction of 18-year-olds. While the army was in its early stages of growth to wartime strength, restrictions against the induction of illiterates and of men with minor physical defects were dropped. In the summer of 1943 the drafting of "limited service" men was stopped and the army released men who could not qualify for general service. Following the surrender of the last of the Axis powers in 1945, an intensive recruiting program for the Regular Army was instituted, looking toward eventual replacement of drafted men in the occupation forces who desired discharge. Selective service was also continued for the same reason, but drafting of men over 26 years of age was stopped. Recruiting for the Women's Army Corps also ceased.

In the early months of the war, promotions in both the enlisted and officer ranks were necessarily rapid. The tremendous expansion of the army necessitated the rapid filling of many positions which called for rank. By 1944, however, the pace had slowed down considerably. New regulations lengthened the time required in all commissioned grades before promotions could be made. Rapid promotions are permitted now in only the most exceptional cases.

The prewar army of 1940 had 100 general officers (brigadier general and above), which total amounted to two thirds of 1 per cent of all officer personnel. On V-J Day there were approximately 1,600 generals, or one fifth of 1 per cent of total officer personnel numbering 800,000. In September 1945 the War Department announced that 170 general officers had either left active duty, were about to do so, or were being reduced in grade as a part of the army's demobilization program.

Orientation, Training and Education.—While hostilities were in progress, military training became increasingly realistic and correspondingly severe. It was found that exposure to simulated battle conditions and what the soldiers described as a "rugged" training course paid off substantially in keeping casualties down and maintaining physical efficiency on the battle field. A series of marches of graduated length up to twenty and thirty miles under full packs increased endurance, and the running of obstacle courses developed agility. On the infiltration course, the trainee crawled under barbed wire, cradling his rifle in his arms, while machine guns sprayed bullets a few feet above his head. Instruction in house-to-house fighting was given in specially constructed "villages" where moving dummies were bayoneted and shot. In desert, jungle, and mountain training centers the soldier learned to care for himself under the conditions of terrain and climate which he would soon face in the field.

The soldier's schooling follows a logical pattern developed from experience. His earliest orientation to a new and unfamiliar life is gained largely on the drill field and through carefully planned classes. He is taught the use and care

of his rifle and other equipment and the fundamentals of military courtesy and law, and he receives instruction in personal and group hygiene. Full use is made of training aids which can be seen and handled and of charts and training films. The soldier is taught to drive and care for military vehicles, to communicate messages, to use his gas mask and compass, and to read maps. The basic training course, which stood at seventeen weeks at the close of hostilities, prepares him for duty as an individual replacement.

In the unit training which follows, the soldier learns teamwork with his comrades in the ranks and begins to appreciate the co-ordination of his company with others in his battalion, of his battalion with other units in his regiment, and of his regiment with supporting ground, air and supply forces. This type of training reaches its climax in field maneuvers on a divisional or higher level in which military problems are worked to a conclusion, with all arms and services participating.

The Army of the United States is one of the best-informed armies in the world. Weekly orientation lectures are compulsory in all basic training programs. These lectures ground the soldier in the history of the war and keep him abreast of military developments and the army's changing mission. The officers conducting the orientation program have been guided by a weekly "newsmap" summarizing operations and by other publications of the army's Information and Education Division.

One of the most important and successful of army orientation programs has been a series of films under the general title "Why We Fight," which portray enemy and Allied forces in action as well as our own. These films, directed by Col. Frank Capra of the motion picture industry, have been seen by every member of the army. Other army films have taught the trainee the grim realities of war and the pitfalls he must avoid. Effective use of humor has been made in correcting less serious errors.

As in 1917–18, but under a different plan, the army has made full use of the nation's colleges for the training of troops. Modern war requires an endless variety of specialists in the ranks, and the colleges were able to supply the basic knowledge on which purely military training in the use of specialized techniques could be based. Young men of seventeen enrolled in the Enlisted Reserve Corps and qualified inductees up to the age of twenty-two took part in the Army Specialized Training Program, which utilized the services of more than 200 American colleges and universities. An urgent need for combat forces in Europe caused a drastic reduction in the ASTP program in 1944, but it was revived for 17-year-olds in 1945 as the Army Specialized Training Reserve Program.

Off-duty education of a general nature has developed during the war into a program of substantial importance. The United States Armed Forces Institute, operating from Madison, Wis., has offered nearly 300 different correspondence and self-teaching courses in high school, technical, and basic college subjects. A large number of colleges and universities have co-operated with USAFI in making correspondence extension courses available to army personnel. USAFI's program was received with unmistakable approval by thousands of soldiers, who were thereby enabled to continue their education during the war. Certificates of courses completed are supplied upon application.

The Army on Fighting Fronts in 1945.—The groundwork for the defeat of Germany and Japan was laid in the fall of 1944. In October the German army was a cornered beast, under determined attack from three sides and a mounting storm from the skies, but still dangerous. Savage counterattacks could not, however, disguise the fact that the initiative was with the Allies on all European fronts. The fall of Aachen shortly after the middle of October proved that the "holy soil" of Germany could be seized and held against all the power which the Wehrmacht and the weakening Luftwaffe could muster. But Germany still held the advantages of interior lines of communication and prepared fortifications, and difficulties in moving supplies from America to the German border were a source of constant concern. In the east, the Red Army had begun the advance into Poland and East Prussia which ended with the fall of Berlin. The Russians were, however, engaging the bulk of the German army along a front twice as long as that in the west, and the Germans, in mortal fear of revenge for the outrages inflicted on Russian civilians, were resisting to the death. In northern Italy a conglomerate Allied force was inching forward and waiting for spring.

General MacArthur had established his position on Leyte in the Philippines, and, as the Japanese well knew, American occupation of the island group would cut their supply lines from the Indies as well as make feasible the invasion of their homeland. The defeat of a dangerous Japanese naval attack on our fleet at Leyte late in October confirmed Japan's inability to sweep the American Army back into the sea.

The fall of 1944 also brought a halt of Japanese expansion on the continent of Asia and the beginning of a recession. American, British, and Chinese forces began a push into Burma which was to end in 1945 on the borders of Siam. In south China an army of Chinese patriots aided by American training, supplies, and air support repelled a Japanese spearhead thrusting west into Kweichow province and began to threaten the Japanese corridor extending south to Indo-China. The strategy of cutting across south China forced a general Japanese withdrawal to the Yangtze River line by the following summer.

The clearing of the port of Antwerp in Belgium during November greatly improved supply to General Eisenhower's forces for the advance into Germany, and a general squeeze all along the western front began. The Russians moved into Hungary and Slovakia. German troops of second-rate quality began to be met on the western front, indicating that manpower was running low.

It began to appear in December that the winter fighting would be uneventful, when suddenly a heavy German assault drove a deep dent into the western front in Luxembourg and the Ardennes. The Battle of the Bulge, Germany's last major offensive effort, recalls the stone-wall American resistance at the northern and southern hinges of the salient and the heroic defense of Bastogne in southeast Belgium.

In January the eastern front in Poland "exploded," to quote German press reports. The Red Army began its carefully prepared general advance and in a matter of weeks stood on the German border. Despite last ditch German resistance in isolated strong points, the big squeeze was on in the east as in the west, and Poland's ordeal under Nazi rule was ended.

In February the Red Army established bridgeheads across the Oder River and American forces continued their progress through the Siegfried Line west of the Rhine, Germany's defense in depth against attack from the west. British and Canadian forces at the northern end of the front continued to press into Holland and succeeded in flanking the end of the Siegfried Line defenses. Flood conditions impeded the Allied advance into the north German plain country.

It was estimated that in the first two months of 1945 Germany had suffered nearly two million casualties. Prisoners began to be taken in large numbers on the western front.

Meanwhile General MacArthur had launched a full-scale invasion of Luzon early in January and the complete liberation of the Filipinos from their hated conquerors was in sight. In all of the Philippine operations, American forces were aided by Filipino guerrillas. Armed with American weapons, captured Japanese equipment, or their native bolo knives, the Filipinos took a substantial part in the freeing of their native land from Japanese rule.

American forces crossed the Rhine at Remagen on March 8, 1945, and the last natural barrier in western Germany became valueless. With the air forces blasting the way, American tanks and mobile artillery began punching into the heart of Germany, closely followed by foot troops. Disheartened German troops surrendered more and more readily to the advancing Americans. The First French Army, equipped by the United States, was beginning to bear its part in the struggle to force an unconditional surrender. Hitler in desperation was attempting to salvage a compromise peace with unofficial "feelers" and incitement to fanatical resistance, but it was clear that Germany lacked the manpower, productive capacity, transport, and morale to fight on three fronts. The end came on May 8, with the Allies on the Elbe River, the German forces in northern Italy in rout toward the Alpine passes, and the Russians in Berlin.

The Allied view that Japan was the weaker enemy was amply borne out by Hirohito's surrender offer of four months later. It was evident that, without changing the Japanese form of government and with millions of foot soldiers still undefeated in the home islands and the East Indies and on the continent of Asia, the Japanese nation could have been bombed out of existence. Acceptance of the surrender offer under terms subordinating the emperor's rule to the will of the Supreme Allied Commander is estimated to have saved a million Allied casualties.

All army casualties as reported through July 29, 1945 totaled 920,917, divided as follows: killed, 197,676; wounded, 570,766; missing, 34,734; and prisoners of war, 117,741. Of the wounded, 351,317 had returned to duty, and of the prisoners 95,709 had been exchanged or returned to military control.

ARNOLD, Henry Harley, United States Army Air Forces officer: b. Gladwyne, Pa., June 25, 1886. As Commanding General of the United States Army Air Forces from March 1942, General Arnold was one of the chief architects in the building of American air power from a force of some 20,000 men and a few thousand planes to a vast global organization of 2,300,000 men whose plane production needs were met with an output of almost 10,000 military aircraft monthly in 1944. On Feb. 26, 1945, the European and Pacific wars still to be won, General Arnold warned the United States it would be the first target for enemy air attack in the next war, and outlined a program of postwar preparedness. Two days later, he revealed that the army's first jet-propelled combat plane was already in production. In July 1945, General Arnold attended the Truman-Churchill-Stalin conference in Berlin (Potsdam). On November 20, it was revealed that General Arnold had submitted his resignation as commanding general of the Army Air Forces. It was stated that following his retirement he will locate on the West Coast and will become an advisor to airplane manufacturers. General Arnold is a graduate of the United States Military Academy (1907); commissioned second lieutenant in the infantry, he transferred to the air corps, and become one of the first five army officers given flight training by the Wright brothers. In the First World War, he commanded a flying unit in the Panama Canal Zone. He was promoted General of the Army in December 1944.

ART. See ARCHITECTURE; LATIN AMERICAN ART; METROPOLITAN MUSEUM OF ART; PAINTING AND SCULPTURE.

ARTS AND LETTERS, American Academy of. See AMERICAN ACADEMY OF ARTS AND LETTERS.

ARTS AND LETTERS, National Institute of. See NATIONAL INSTITUTE OF ARTS AND LETTERS.

ASCAP. See PERFORMING RIGHT SOCIETIES.

ASCENSION ISLAND. See ST. HELENA.

ASHANTI. See BRITISH WEST AFRICA.

ASIA MINOR. Geographical name of the peninsula which forms the bulk of Turkey (q.v.).

ASSOCIATED PRESS. See LAW, Section 3.

ASTON, Francis William, English physicist: b. Harborne, Birmingham, England, Sept. 1, 1877; d. London, Nov. 21, 1945. In the world of science the name of Dr. Aston was synonymous with isotopes, the science of which he developed, in the years after the First World War, along with Prof. Frederick Soddy, who, like Dr. Aston, won the Nobel Prize in Chemistry.

Dr. Aston was educated at Malvern College and the universities of Birmingham and Cambridge. He was assistant lecturer in physics at Birmingham University in 1909, and the next year entered Trinity College and Cavendish Laboratory at Cambridge. During the First World War, he served as a technical assistant in the Royal Aircraft Establishment, and in 1920 he was elected a fellow at Trinity College. He developed a high-precision instrument known as a mass spectrograph, by which he proved that most elements consist of a mixture of identical atoms of different weight, or isotopes. With this instrument some of the greatest discoveries in modern times have been made. One of these was the discovery of heavy water; and by means of a modified form of this instrument, the existence of the now famous isotope of uranium—uranium of atomic weight 235—the element that led to the development of the atomic bomb, was discovered at the University of Chicago by Prof. Arthur J. Dempster in 1935. Dr. Aston received the Mackenzie Davidson Medal of the Roentgen Society (1920); the Nobel Prize in Chemistry and the Hughes Medal of the Royal Society (both 1922); the Joykissen Mookherjée Medal, Calcutta, and the Royal Medal of the Royal Society (both 1938). In 1922 he visited the United States to deliver a series of lectures at several universities. He was the author of *Isotopes* (1922), *Mass-spectra and Isotopes* (2d ed. 1942), and numerous articles for scientific periodicals.

ASTRONOMY. With the ending of the Second World War we can expect many observatories to renew or increase their activity. Meantime news has gradually come as to the fate of those in the war zone. It has been fully confirmed that Pulkovo and Simeis observatories were wholly destroyed, though some equipment was saved. The majority of that at Simeis was seized and carried to Germany; whether it has been recovered is unknown. The Kiev Observatory has been rebuilt and is back at work. Many others in the USSR were far from the front and able to continue their activities. The French observatories seem to have been mostly unharmed. The same may be said of Leyden in Holland, but Uccle Observatory in Belgium had some of its instruments confiscated. Hamburg Observatory is said to have been destroyed, Leipzig to be damaged and Potsdam to have escaped. Reports on the condition of other German and Austrian observatories are not at hand. Arcetri in Italy escaped. With priorities removed and personnel available once more, the 200-inch Mt. Palomar, California, reflector should be in use within a year or two. However, of all countries, far the most ambitious program, on a national and long-period basis, has been planned for the USSR. They hope to have numerous fine observatories, new and rebuilt, in full activity within a decade.

Comets.—No bright comet was visible during the year. Several faint ones, already known, were observed and three new ones. Two of these were discovered by D. du Toit at the Boyden South African branch of Harvard Observatory. Comet 1945a, found on April 9 in the constellation Leo, was 10 magnitude. Not being found on plates at the two Massachusetts stations of Harvard Observatory, it was not announced until June 12. Meantime, however, it had been successfully followed from the Southern Hemisphere. Comet 1945b, found on June 11 in Cetus, was also 10 magnitude. It had a declination of -20° and rapidly went further south. According to an orbit by Dr. Jorge Bobone, the orbital inclination was 156° and it had passed perihelion on May 17. Periodic comet Schwassmann-Wachmann 1925 II was the only such object visible at the beginning of the year. Comet 1943a (Oterma) was observed again on April 14, having a coma only 6″ in diameter and being 17 magnitude. This was found on plates taken by G. van Biesbroeck, using the powerful 82-inch reflector of the McDonald Observatory, Texas. By July 5 it was 18 magnitude. Pons-Winnecke's Comet was rediscovered by H. L. Gilcas at Lowell Observatory on May 3. It was 14 magnitude. This comet has a period of 6.23 years and has been observed at every return since 1909. Comet Kopff also was rediscovered by Gilcas on May 7, being diffuse but with a nucleus and of 13 magnitude. Comet 1944d (van Gent) was observed on July 5 at Lick Observatory by G. Herbig and was 18.5 magnitude. Comet 1944b (Väisälä) was 15.5 magnitude on August 7. The third new comet was discovered on November 22, by C. L. Friend of Escondito, Calif. It was then 7 magnitude, hence the brightest of the year.

Meteors.—Nothing of outstanding importance happened in meteoric astronomy. The annual Perseid shower was extensively observed in America. While the number of very brilliant meteors was small, many observers, who were favored with excellent skies, had after-midnight rates of considerably over 100 meteors per hour on August 11/12. On May 4 at 3:38 A. M., E.W.T., an enormous bolide passed over eastern Pennsylvania and burst near Wilmington, Del. Though the sky was heavily overcast, the whole heavens were lighted by the passage and bursting of this body, while over a large area houses were shaken by the air waves and thousands awakened by the accompanying noise.

Eclipse.—The total eclipse of July 9, though with totality of very short duration, was extensively observed from many stations on both sides of the Montana-Manitoba boundary, and, after the shadow cone had crossed the Atlantic, from Scandinavia and the USSR. Despite the difficulties of transportation many expeditions were able to reach stations along the path of totality, and most had good weather. For America, the Sun was low in the east, the eclipse occurring early in the morning. The corona appeared of the usual shape typical of sunspot minimum, having two great equatorial wings. From aircraft of the Royal Canadian Air Force, 35 spectra were taken, some from an altitude of 5 miles. B. Lindblad in Sweden obtained good cinema films of the flash spectrum, as well as moving-plate records with higher dispersion. Aircraft were also used there for photographs at a 2 to 3 mile height. Details from numerous Russian parties are lacking but they report great success.

Solar System, New Theories Concerning.—Theories of the formation of the solar system have proved so difficult to square up with known facts that, at present, there is none which has general acceptance. Recently two have been published which diverge from the catastrophic type that, on the whole, have been in favor for the past half century. That due to von Weizsacher starts with an already existing Sun which collects a sort of nebulous envelope from a relatively dense region of the general interstellar cloud, through which it would be passing. The cloud would be in turbulent motion, the gas and dust particles moving in all planes. Internal frictions would cause the formation of a disk-like envelope, comparable in extent to the present diameter of the system, and about one hundredth as thick. Details of the theory from here on are too complicated for review, but it seems to evade the great difficulties in former theories to account properly for the angular momentum of the planets and to explain Bode's law of planetary distances. The other theory by H. Alfvén of Stockholm also supposes the Sun to enter a nebula, but one consisting of neutral atoms. These will be attracted by the usual gravitational forces, but when they reach a critical distance from the Sun they become ionized. Unlike neutral atoms, the ions will be affected more by the magnetic field of the Sun than by its gravitational field, and in general will be repelled. An equatorial disk will then be formed and caused to rotate by these electromagnetic forces. Again details are very complicated, but a real advance seems to have been made by the insistence on the importance of electromagnetic forces as well as gravitational in the genesis of the solar system.

Stars.—Unusual stars of various kinds are being constantly discovered, due mostly to the application of photography to astronomy. Adriaan van Maanen determined the parallax of the star Ross 882 as+0″.146, finding its magnitude varied from 13.2 to 11.8. This means that its absolute magnitude is from + 14.0 to + 12.6. Its type is dM4e, which means that it is a M4-type dwarf with emission lines. Very few dwarf stars of such great intrinsic faintness so far have been found variable. W. L. Luyten continued his work on white dwarfs, several being found among the

components of faint double stars. One single star in the south circumpolar heavens, LPM 445, with a photographic magnitude of 17.4, is probably by far the faintest white dwarf known. Eclipsing variables continue to hold the attention of many observers. The simultaneous study of these objects, by both the photometer to determine the light curves and the spectrograph to secure records of the accompanying physical changes, has led to surprising hypotheses as to some stars having extensive outer envelopes, some emitting streams of gas which curve around the main star, etc. Leon Campbell has worked up the observations of W Lyrae, a long-period variable, which cover the period 1896 to 1945. He proved that the mean period decreased from 198 to 193 days by 1925 and has since increased to 199 days. Many long-period variables do not exactly repeat their behavior period by period both as to its length and their extreme magnitudes. Such stars are objects particularly suited for observation by amateurs and literally tens of thousands of observations are made by them every year. The data for the study of W Lyrae was, for instance, mostly furnished by them. Another nova in Aquila, which rose to about 7 magnitude, was discovered by Nils Tamm of Stockholm on August 28. In the month after its discovery it had dropped about two magnitudes. Spectrum plates on August 29 showed broad emission lines typical of such objects. Measures at the Dominion Astrophysical Observatory of the hydrogen lines indicated velocities for its expanding shell of gas to be from 2,150 to 1,330 km/sec. Its absolute magnitude was calculated as being —6.8, and its distance about 8,300 light years. Examination of old plates of the region, showing stars down to 16.5 magnitude, do not show the nova. If it follows the general course of such objects, which quickly return to their pre-nova brightness, it will wholly disappear within a few years at most. On April 7, Milton Humason at Mt. Wilson photographed a faint object, about 7″ from NGC 5195, which turned out to be a supernova, caught, however, about 2 months after it had attained its maximum brightness which was calculated to have been 11 photographic magnitude. The "recurring nova" T Pyxidis came to a maximum of 7.1 magnitude in November 1944. Previous outbursts had occurred in 1890, 1902 and 1920.

CHARLES P. OLIVIER,
Director, Flower and Cook Observatories, University of Pennsylvania.

ASTROPHYSICS. See under PHYSICS.

ATOMIC BOMB. On Aug. 6, 1945, President Harry S. Truman, then en route back to the United States from the Potsdam Conference, electrified the world with the announcement that 16 hours earlier an atomic bomb had been dropped from a United States Army plane on Hiroshima, Japan, a city with a population (1940) of 343,968, on the home island of Honshu. "That bomb," said Mr. Truman, "had more power than 20,000 tons of TNT. . . . It is the harnessing of the basic power of the universe. . . . What has been done is the greatest achievement of organized science in history."

Three days after Hiroshima was bombed another bomb, differing in some respects from the first, was dropped on Nagasaki, another Japanese city on the west coast of Kyushu Island. The results in both cases were devastation. Gen. Carl A. Spaatz, United States Army Air Forces, estimated that 60 per cent (4.1 square miles) of Hiroshima had been wiped out, while navy headquarters at Guam reported that a third of Nagasaki's industrial area had been razed.

The bombings brought results. On August 10 it was announced that Japan had offered to accept the terms of surrender set forth in the Potsdam Declaration of July 26, 1945, which were "unconditional." Russia's entrance into the war on August 8 may have been a contributing factor, but Japan's sudden capitulation almost immediately after the dropping of the second bomb, accompanied by the statement that other bombs would follow, is significant.

The story of the bomb, development of which, according to Mr. Truman, required practically four years of effort and cost approximately $2,000,000,000, was the biggest and best kept secret of the Second World War. Aside from the scientists, few, if any, of the nearly 65,000 persons who worked on blueprints, handled materials, erected buildings and otherwise expedited construction of the bomb, had any idea as to exactly what they were doing or what it was all about.

For several years scientists in the United States and abroad had been smashing atoms, but until the president made his announcement, only those on the inside knew that atomic energy was being investigated for military purposes. Nevertheless, its possible use in warfare had been under consideration in the United States since 1939, when the War Department was informed that physicists had succeeded in splitting the uranium 235 atom. In December 1941 the Office of Scientific Research and Development, headed by Dr. Vannevar Bush, president of the Carnegie Institution of Washington, decided to make an all-out attempt to develop atomic energy for military purposes.

Early in 1942 a heavy water plant, constructed by the Germans, was discovered in Norway by British and Norwegian volunteer Commandos. This discovery confirmed the suspicion that Germany, too, was endeavoring to develop an atomic bomb, and that it really was ahead not only of the United States but also of Great Britain, which likewise was at work along the same lines. Thereupon Britain and the United States decided to pool their interests, and the whole project was placed under the supervision of Maj. Gen. Leslie R. Groves of the United States Army Engineers.

Numerous American scientists were called into service; Britain and Canada supplied their quotas, and three great plants were constructed: one at Oak Ridge, Tenn.; one at Richland Village in northwest Washington; and one in a remote section of the Alamogordo Air Base in New Mexico, about 30 miles northwest of Santa Fe. Among the numerous scientists who worked on the project, in addition to Dr. Bush, were Dr. R. C. Tolman, dean of the Graduate School, California Institute of Technology; Dr. Karl T. Compton, president of the Massachusetts Institute of Technology; Dr. James Bryant Conant, president of Harvard University; Dr. J. R. Oppenheimer, professor of physics, University of California and California Institute of Technology; and many others.

The first test of the bomb was made in the New Mexico desert on July 16. A steel tower, about 100 feet high, from which the experimental bomb was suspended, was "vaporized" by the explosion, which sent a varicolored cloud 40,000 feet into the air, and lighted up the surrounding country for miles. Two men more than five miles away were knocked down by the

pressure wave, and the shock was felt throughout an area within a radius of 250 miles. The light produced by the bomb is said to have been unearthly, and the force of the explosion something almost beyond comprehension.

Though there was universal rejoicing throughout the Allied countries when the war ended, it nevertheless terminated on a solemn note. The realization that human ingenuity had produced an instrument capable of destroying every living creature in the world in comparatively short order produced solemn reflections. Immediately the question arose: "Now that we have the bomb, what is to be done with it?" The only secret connected with the bomb is the method of constructing it. Some felt that, possessing this secret, the United States should keep it; others, insisting that the secret cannot for long be kept from other nations, urged that it be turned over to the United Nations Organization, and outlawed for military use. The matter was of such importance that Prime Ministers Clement R. Attlee of Great Britain and W. L. Mackenzie King of Canada came to the United States in November to discuss the subject with President Truman. On November 15 the three officials issued a joint statement, the substance of which was that the three nations had agreed to keep the technical processes for making the bombs a secret until such time as it is possible to devise "effective reciprocal and enforceable safeguards acceptable to all nations" against the use of atomic energy for destructive purposes. With this object in view, they recommended the appointment by the United Nations Organization of a commission to study the subject and make recommendations as to how their ideas can best be carried out.

[In the following paragraphs, Dr. W. V. Houston, professor of physics at California Institute of Technology, explains the scientific development of atomic energy.—Editor.]

Atomic Energy

Although the details of the nature and construction of the atomic bomb have not been released, enough information has been made public to indicate the general principles used in this application of atomic energy. Many of these principles had been common scientific knowledge at the beginning of the war.

The first experiment in which the energy of an atomic nucleus had been released was reported by Sir Ernest Rutherford in 1919. Using alpha particles, which are helium nuclei, to bombard nitrogen, he found that occasionally a nitrogen nucleus was transformed into a nucleus of oxygen, with the emission of a proton, or hydrogen nucleus, of high kinetic energy. In 1932, Cockroft and Walton, working in the Cavendish Laboratory at Cambridge, England, bombarded lithium with high-speed protons and found that occasionally a collision with a lithium nucleus produced two energetic alpha particles. These were both cases in which the nuclear structure of the atoms was involved, and in which the energy present in a nuclear structure was released as energy of motion of the particles.

The real stimulus to the idea of obtaining useful energy from atomic nuclei came in the years 1939 and 1940 with the discovery of the so-called fission of uranium. Uranium is the heaviest of the known stable chemical elements. As a matter of fact, it is not entirely stable because it decays radioactively, with, however, a very long lifetime. Uranium exists in the form of three different isotopes, that is, atoms of the same chemical properties but of slightly different atomic weight. The nuclei of all of these atoms contain the same number of protons, that is, 92. In addition, they contain various numbers of neutrons. Uranium 234 contains 92 protons and 142 neutrons. U-235 contains 92 protons and 143 neutrons. U-238 contains 92 protons and 146 neutrons. These three isotopes are present in normal uranium to the extent of .006 per cent, 0.7 per cent, and 99.3 per cent respectively. It was discovered that U-235, when struck by a very low-speed neutron, would split into two parts. These two parts were not identical, and were not always the same. Usually, one part had an atomic weight in the neighborhood of 90, and the other an atomic weight in the neighborhood of 140. This fission was accompanied by the liberation of some two hundred million electron volts of energy. The most striking thing, however, was the fact that the products of fission were themselves unstable, and emitted additional neutrons. Hence, a reaction set off by one very low-energy neutron could result in the production of several relatively high-energy neutrons. It was realized that if these additional neutrons could be used to cause fission of additional uranium nuclei, the whole process would be self-sustaining, and a tremendous amount of energy might be released in a very short time.

In order that this reaction be self-sustaining, it is necessary that at least one neutron from each fission process cause another fission. These are four possible fates of neutrons released in such a process:

(1) The neutron can entirely escape from the reacting material. This is very possible if the mass of the material is small. Certainly, if only one uranium atom is involved, all of the neutrons produced will escape. Because of the existence of this process of escape, a self-sustaining reaction requires the presence of a relatively large mass of material.

(2) The neutron can be captured by uranium in such a way that it does not produce fission. In particular, U-238 has a large probability of capturing neutrons in this way to produce the unstable U-239.

(3) Neutrons can be captured by impurities, in particular, by nitrogen. This removes them from further consideration.

(4) Neutrons can be captured by U-235 to produce fission.

In order that the reaction be self-sustaining, it is necessary that the fourth process, the capture of neutrons by U-235 to produce fission, have a sufficiently high probability relative to the other three. Each of the other three processes can be reduced in probability by suitable measures. The probability of escape can be reduced by using a large volume of material. The probability of capture by U-238 can be reduced by slowing the neutrons to a very slow speed, since capture by U-238 has a maximum of probability for neutrons of several electron volts of energy. Probability of capture by impurities can be reduced by removing the impurities. This is easily specified, but difficult to carry out to the required degree.

To reduce the capture of neutrons by U-238 it was found desirable to introduce a so-called moderator. This moderator can be any material that does not capture neutrons, and which has a sufficiently low atomic weight so that a neutron loses a considerable fraction of its kinetic energy in an elastic collision. Suitable metals

for this purpose are deuterium, beryllium and carbon. Carbon appears to be the most available and the most easily used. If, then, masses of ordinary uranium metal are distributed throughout a large mass of graphite, the neutrons will spend a good deal of time in the graphite, will have their kinetic energies reduced to very low values, and when they happen to meet a piece of uranium, the probability for capture by even a small amount of U-235 appears to be sufficient to keep the reaction going. Under these circumstances about two hundred million electron volts of energy will be transformed into heat for each fission process that takes place, and the mass of uranium and graphite will be heated up. This heat can then be used for the production of power in the usual ways. Nevertheless, up to the present it has not been found practical to obtain much power in this way, because of the relatively low temperature at which such reactions have been carried out. Means for handling the reaction at a higher temperature will have to be developed before this can be a very effective source of power.

On the other hand, if U-235 could be obtained in any considerable quantities and with any considerable degree of purity, the use of a moderator would be unnecessary, and, in fact, the reaction would grow with explosive violence as soon as a sufficiently large quantity of material is brought together. This is presumably one way in which an atomic bomb might be made.

The separation of U-235 from the other isotopes is an extremely difficult matter, and although a great deal of effort has been put on the problem, little information is available as to what success has been obtained.

In the process described above for maintaining a self-sustaining reaction, some neutrons will be absorbed by U-238 to form the unstable U-239. This is found to emit an electron very quickly and so to become a new element, neptunium, which has an atomic number 93 and a mass number 239. This again is unstable, and soon emits another electron to form a second new element, plutonium. Plutonium has the atomic number 94 and the mass number 239. This plutonium is relatively stable, although it apparently decays in time with the emission of an alpha particle to form U-235. However, the plutonium itself will spit in two parts when it captures an additional neutron in the same way as U-235. In other words, plutonium 239 can be used as well as U-235 for the production of an explosion or for the maintenance of the self-sustaining reaction.

If the process described above for maintaining a self-sustaining reaction in a suitable grid of uranium and carbon is allowed to go on, a certain number of the U-238 atoms will absorb neutrons and be transformed into plutonium. This plutonium can be separated from the uranium by chemical means, which are normally much easier to carry out than means for the separation of isotopes. Hence, one may consider plutonium itself as a material out of which a bomb might be constructed.

There are many details of the methods necessary for producing the requisite concentration of U-235 or the requisite quantity of Pu-239 that have not been made known. The very fact, however, that success has been attained in the production of an atomic bomb indicates that there is no fundamental principle that prevents utilization of this form of atomic energy. It therefore becomes reasonable to look forward to the time when useful energy can be obtained in this way. It is possible that energy can be obtained from more abundant elements than uranium, but even if this is not the case, there may be circumstances under which it is desirable to be able to transport energy in a highly concentrated form, such as for use in propelling airplanes and automobiles. The convenience of this highly concentrated form might make it desirable to use atomic energy, even if it were more difficult to obtain than the ordinary fuels that are now widely used. For further information on the atomic bomb see under CANCER; CHEMISTRY; ELECTRICAL AND ALLIED DEVELOPMENTS; METALLURGICAL ADVANCES; PHYSICS; WAR POLICY, UNITED STATES; WORLD WAR SECOND—*The Death Blow.*

W. V. HOUSTON.

ATTLEE, Clement Richard, British statesman: b. Jan. 3, 1883. Now Prime Minister of Great Britain, Mr. Attlee spent his early life as one of a large, well-to-do English family; attended Haileybury College, and Oxford's University College where he was graduated with honors in modern history. He then studied law; was called to the bar at the Inner Temple in 1905; and for the next four years, practiced as a barrister. Meanwhile, as a settlement worker in London's East End, he had his first contact with British working class life, and saw the meaning of poverty. Except for the period of the First World War, he lived in the East End until 1922, helping to better conditions in the Limehouse district. These experiences and the writings of William Morris and John Ruskin aroused his interest in labour politics, and he joined the Labour Party in 1907. From 1913–23, he was social science tutor and lecturer at the University of London's School of Economics. In the First World War, he served at Gallipoli, in Mesopotamia, and in France; he left the army in 1919 with the rank of major.

In 1919, Attlee became mayor of Stepney, also in London's East End, and in 1921, was elected a Labour member of Parliament for Limehouse, and appointed parliamentary private secretary to James Ramsay MacDonald, then leader of the Opposition. Re-elected to the House of Commons in 1923, he was named undersecretary of state for war, when MacDonald formed Labour's first administration in January 1924. Labour was defeated at the general election of October 1924, and for the next five years, Attlee was once more in the Opposition. When Labour returned to office for a second time in 1929, he was given a seat in the Cabinet as chancellor of the Duchy of Lancaster; he proved a shrewd, patient negotiator at the Imperial Conference of 1930. With the reorganization of the MacDonald administration as a national government in 1931, Attlee became postmaster general. He retained his seat in Commons when Labour was defeated in 1932, and after the general election of 1935, became leader of his party. The position of "Leader of His Majesty's Loyal Opposition" was first officially recognized in 1937, and Attlee was the first to receive the salary attached to it.

In May 1940, with the formation of Churchill's national government, Attlee was appointed lord privy seal and deputy leader of the House of Commons. Both these posts he gave up in February 1942 to become secretary of state for dominion affairs; at the same time, he was named deputy prime minister. He retained the latter post after leaving the dominions office in Sep-

ATOMIC BOMB

HOW ATOMIC ENERGY IS PRODUCED FROM A URANIUM ATOM

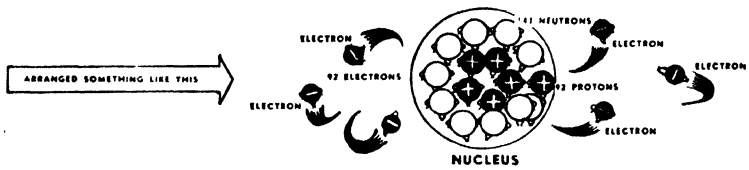
THE ATOM

ALL MATTER IS COMPOSED OF ATOMS. ALL ATOMS CONTAIN ONE (OR MORE):

ELECTRON
A NEGATIVELY CHARGED PART OF THE ATOM

PROTON
A POSITIVELY CHARGED PART OF THE ATOM

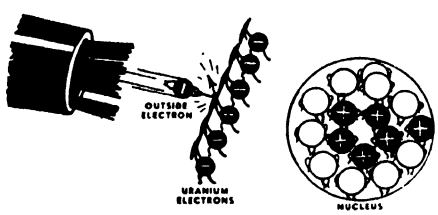
NEUTRON
A PART OF THE ATOM CONTAINING NO ELECTRIC CHARGE



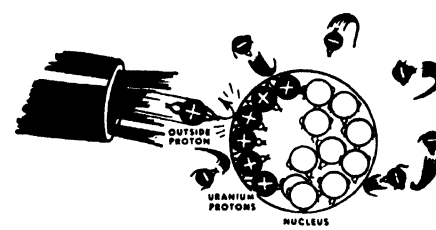
This Uranium atom is U-235. It differs from U-238 only in that it has 143 Neutrons in its nucleus, while U-238 has 146. Their physical and chemical properties are alike; but while a Neutron thrown at U-238 has no effect on it, one which hits U-235 splits it apart, because its fewer Neutrons make it less stable.

EACH SYMBOL REPRESENTS 15

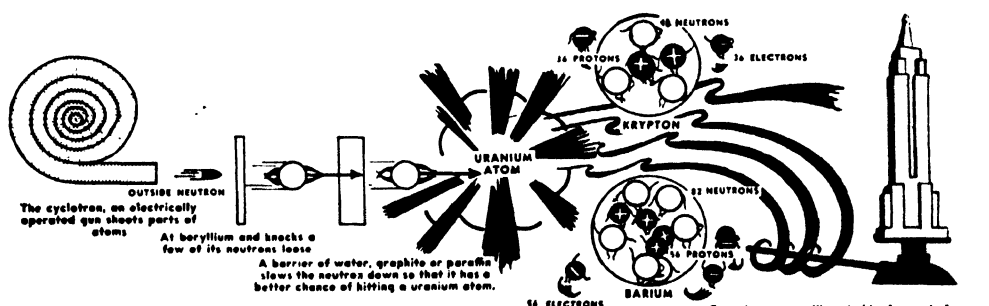
HOW THE ATOM IS SPLIT



If an electron from outside the atom tries to get through, the atom's electrons repel it.



And a proton from outside is repelled by the atom's nuclear protons . . . . . .



WHEN the neutron bullet hits the atom of U-235 and splits it, the electrons, protons and neutrons rearrange themselves and form two new atoms, each roughly half the weight of U-235, and a few other much smaller fragments. A typical pair of atoms would be Krypton and Barium.

56 electrons, 56 protons and 82 neutrons make up the normal Barium atom.
36 electrons, 36 protons and 48 neutrons make up the normal Krypton atom.

However, if *All* the fragments were gathered up and weighed, they would weigh only 99.9 per cent as much as the original U-235 atom. The missing 1/10 of 1 per cent of weight has been changed into energy which immediately appears as terrific heat, causing a violent explosion.

GRAPHICS INSTITUTE FOR SEVENTEEN MAGAZINE

tember 1943 to become lord president of the council, still with a seat in the War Cabinet. In April 1945, he was one of Britain's delegates to the San Francisco conference on world security. As spokesman for his party, after Germany's surrender on May 8, 1945, he refused Churchill's invitation to continue the national (coalition) government until Japan's defeat, and left California on June 13, to campaign for the pending election. He had earlier (June 6) been created a Companion of Honour, in recognition of his services to Britain. Churchill invited Attlee to accompany him to the Three-Power Conference, convened in Potsdam July 17, in order to insure continuity and unity in British foreign policy "no matter who wins the elections." This was the first time an opposition leader in British politics had been invited to accompany the government's representatives to an international conference. The conference adjourned to permit Churchill and Attlee to return to London to receive the results of the general election, announced July 26. The Labour Party's overwhelming victory gave Mr. Attlee his first opportunity to form an administration. On Nov. 10, 1945, Mr. Attlee arrived in Washington, D.C., with Prime Minister Mackenzie King of Canada for discussion with President Truman of the atom bomb problem. On November 13, he addressed a joint session of the United States Congress, explaining to American legislators the aims of the British Labour Party—planned economy at home, international co-operation abroad. On November 15, Prime Ministers Attlee and King and President Truman announced their joint decision to share the atomic bomb secret with other United Nations "just as soon as effective enforceable safeguards against its use for destructive purposes can be devised." Before returning to London, Prime Minister Attlee addressed a session of the Canadian parliament in Ottawa (November 19).

AUSTRALIA, Commonwealth of. A self-governing dominion of the British Commonwealth of Nations, located in the southern hemisphere to the southeast of Asia. The Australian Commonwealth, which has an area of 2,974,581 square miles and a population (June 30, 1944 est.) of 7,306,637, comprises five states and two territories within the continent of Australia, the island of Tasmania constituting a sixth state. These constituents of the Commonwealth, their populations as estimated on June 30, 1944, and their areas, are as follows: New South Wales (2,870,956), 309,433 square miles; Victoria (1,997,804), 87,884 square miles; Queensland (1,065,414), 670,500 square miles; South Australia (621,998), 380,070 square miles; Western Australia (485,407), 975,920 square miles; Tasmania (245,434), 26,215 square miles; Northern Territory (5,179), 523,620 square miles; and Federal Capital Territory (14,445), 939 square miles. The six states, formerly self-governing British colonies, were federalized as the Commonwealth of Australia in 1901. The Commonwealth also administers Papua, the southeastern portion of New Guinea (pop., white and native, 340,070), 90,540 square miles; Norfolk Island (896), 10.2 square miles; and Antarctic territories, other than Adélie Land, south of 60° S. latitude and between 160° and 45° E. longitude. In addition, the dominion holds a League of Nations mandate for the Territory of New Guinea (pop., white and native, 891,165). 93,000 square miles; and shares with the United Kingdom and New Zealand the mandate for Nauru (2,672), 8.43 square miles. A bill introduced into Parliament in July 1945 provided that Papua and the Territory of New Guinea should be amalgamated temporarily until six months after conclusion of hostilities.

Canberra is the federal capital of Australia.

The People.—The aborigines of Australia are fast dying out, only about 48,000 of full blood remaining; reserves have been provided for them, and laws enacted for their protection. European settlement dates from 1788, when convicts from Great Britain landed at Botany Bay. Some 23,000 of the present population are Asiatics, and most of the remainder are of British stock, immigration having been encouraged in the past through governmental assistance. A policy of restricted immigration found general acceptance among Australians, who feared that the entry into the country of large numbers of Asiatics would lower the high standard of living.

The capitals of the states and territories, and their populations as of Dec. 31, 1943, are as follows: New South Wales, Sydney (1,398,000); Victoria, Melbourne (1,170,000); Queensland, Brisbane (370,500); South Australia, Adelaide (362,500); Western Australia, Perth (263,000); Tasmania, Hobart (70,800); Northern Territory, Darwin (4,400); and Federal Capital Territory (12,200).

Education.—Education is under the control of the state governments. Primary education is free, compulsory and secular. In addition to state, or "public" schools, there are so-called "private" schools, managed privately principally by religious denominations and catering to all classes of the community. In 1941 there were 9,535 state schools with 886,655 pupils; and comparable figures for private schools were 1,863 and 224,355 respectively. Higher state schools were available in all states for pupils completing primary grades. The state universities had a total enrollment of 10,761 students in 1942.

There is no state-established *religion*, and no religious tests for admission to any of the rights and privileges of citizenship. At the 1933 census, 99 per cent of Australians professed the Christian faith. The Church of England has the greatest number of adherents (2,565,118 in 1933), and the next largest denominations were, in order of size, the Roman Catholic (1,161,455), Presbyterian (713,229), Methodist (684,022), other Christian (603,914), and Jewish (23,553). In the intercensal period 1921–33, the greatest proportional increases were recorded by the Church of England, the Roman Catholics, and the Presbyterians.

Government.—Legislative power for the Commonwealth as a whole is vested in a federal Parliament consisting of a governor general, representing the British monarch, a Senate and a House of Representatives; the governor general acts on the advice of the Cabinet, composed of elected members of the majority party in Parliament. H.R.H. the Duke of Gloucester, brother of King George VI, took the oath of office as governor general on Jan. 30, 1945. The Senate consists of 36 members, chosen for six years, being six for each of the original six states; in general, one half is renewed each three years, though in case of a deadlock with the lower house the Senate may be dissolved and a new one elected in its entirety. As nearly as may be, the number of representatives is twice that of the senators, all elected for three years unless the House of Representatives is sooner dissolved; the House had a membership of 75 in 1944. At the general elec-

tion on Aug. 21, 1943, the Labour Party was returned to office with a decided majority, obtaining 49 seats in the House of Representatives and 22 of the 36 renewed in the Senate. John Curtin continued as Labour prime minister until his death on July 5, 1945. Francis M. Forde, deputy leader of the Labour Party, filled an interim premiership until July 12, when Joseph Benedict Chifley (born at Bathurst, New South Wales, Sept. 22, 1885) was sworn in as prime minister. Chifley retained his Cabinet post of Commonwealth treasurer, and enlarged the Cabinet by creating the two new portfolios of Housing and Immigration. Legislative powers of the federal Parliament comprise defense, external affairs, finance, banking and currency, commerce, shipping, railroads, posts and telegraphs, census and statistics, copyright, and arbitration in interstate industrial disputes. Money bills must originate in the lower house, and may not be amended by the Senate.

The relationship between the government of the Commonwealth and the governments of the constituent states is analogous in many respects to that obtaining in the United States between Congress and state legislatures. In Australia, too, state loyalties are intense. The Parliament of each state exercises legislative control over such matters as land settlement, agriculture, water conservation, fisheries, forestry, mining, education and police, and generally is reluctant to relinquish these powers. Early in 1944 the Commonwealth government sought 14 additional legislative powers for postwar reconstruction, these requests covering such subjects as employment, unemployment, and the production and distribution of goods, all matters hitherto reserved to the states. Since these proposals necessitated amendment of the Australian Constitution, they were submitted to the people by referendum on August 19, with the result that the electors refused by a substantial majority to transfer these powers from the states to the federal government; the government obtained 1,963,400 votes, and its dissidents 2,305,418.

Finances.—While Australia's expenditure on defense was only £A14,000,000 in 1938–39, the last financial year prior to outbreak of the Second World War, in six years of that conflict (down to the end of the fiscal year June 30, 1945) Commonwealth defense expenditure totaled £A2,111,000,000; of this sum, £A717,740,000 was raised from revenue, and the rest was provided by loans. Total expenditure for the year ended June 30, 1945, was £A609,000,000 (£A149,000,000 for nonwar purposes); it was financed by taxation (£A304,000,000), other revenue receipts (£A39,000,000), public loans (£A234,000,000), and the temporary use of Treasury balances (£A32,000,000). In 1944–45 war expenditure amounted to £A460,000,000, of which £A26,000,000 were expended overseas. This compared with a war expenditure of £A544,416,000 in 1943–44, the decrease of £A84,416,000 being due to a reduced program of capital works necessary for war purposes, and to the need for diverting manpower from the armed forces and from the production of munitions in order to provide essential supplies required by Great Britain and the Allied countries. During the war period Australia repaid £A12,000,000 of the £A18,000,000 borrowed for defense and war purposes, and, in addition, overseas debt of the states and the Commonwealth, totaling £A62,000,000 was repatriated; the latter accomplishment saved £4,000,000 sterling annually in overseas interest.

The budget for 1945–46, the first for six years to cover 12 months of peace, estimated that revenue would amount to £A340,284,000 (as compared with £A343,000,000 in 1944–45). While the special tax of 1s. 6d. to the pound on taxable income to meet the cost of social services was retained, personal income taxes were reduced and sales taxes were lowered over a wide range of commodities; the net effect was that the combined individual levies, including those on members of the armed forces, would average about 12½ per cent lower for the year than the existing income tax levy alone. War expenditure in 1945–46 was estimated at £A360,000,000, and nonwar expenditure at £A132,000,000, making a total of £A492,000,000. Despite the rapid reduction in strength of the forces, expenditures for pay and allowances for members of the armed forces would remain high, and health and social services showed an increasing cost.

Lend-lease and reciprocal aid (lend-lease in reverse) were vital wartime factors in Australia's external financial position, the flow of essential supplies during that period being unimpaired by financial considerations. It was estimated unofficially that the value of lend-lease goods received in Australia down to the end of March 1945, was £A350,000,000, while Australian expenditure from April 1942 to June 30, 1945, on reciprocal lend-lease supplies and services for the United States Forces in the Southwest Pacific area was £A258,000,000. One fifth of Australia's total war expenditure in 1944–45 was on account of reciprocal aid. The Commonwealth and New Zealand provided 95 per cent of the food needed by the United States forces in the Southwest Pacific, as well as clothing, technical and aircraft equipment, transportation and communications, and buildings and strategic works. The huge cost at which Australia honored her obligations to the United States strained the financial resources of the country and depressed the living standards of her civilian population. With the cessation of lend-lease and reciprocal aid, however, Australia, in common with other members of the sterling area, faced an acute shortage of dollars and a consequent necessary restriction of imports from dollar areas.

Australia at War.—Voluntary enlistment of an expeditionary force for service anywhere in the world followed immediately on outbreak of war in 1939, and compulsory training for home defense was reintroduced. All citizens were registered in a manpower pool after the collapse of France in 1940, and mobilization was further extended in 1942 to meet the Japanese menace. By 1942 the strength of the Royal Australian Navy had been increased sixfold, and the Royal Australian Air Force was fortyfold stronger. A corps of three divisions fought throughout the Middle East, and the greater part of a fourth division assisted in the campaign in Malaya after Japan struck. With the collapse of Singapore, Australian troops returning from the Middle East were diverted to Java to join small contingents of British and United States forces, and others were sent from the Commonwealth to Timor, where a fruitless attempt was made to defend both the Netherlands and the Portuguese areas of the island. Then the Australians, with forces which ultimately totaled ten divisions, embarked upon the campaigns in Papua and the Territory of New Guinea; United States troops fought alongside them until November 1944, after which operations were continued by the Australians and New Zealanders alone. By Aug. 14, 1945, Australian

casualties had totaled 95,561 (army, 78,086; navy, 2,816; air force, 14,659). Tales of indescribable cruelty were related by the few Australians to survive capture by the Japanese.

External Affairs.—As a member of the British Commonwealth of Nations, Australia deals with the government of Great Britain through her own high commissioner (virtually, a minister), not through the governor general, whose constitutional position is comparable to that of the British monarch. In the Commonwealth is a like British high commissioner, and similar arrangements exist with respect to New Zealand, Canada and India. Australia also exchanges ministers with the United States, China, the Soviet Union, and the Netherlands, and (since February 1945) has a minister at large in South America. Nelson T. Johnson, American minister to the Commonwealth, resigned February 14 and his successor has not yet been appointed (Nov. 1, 1945). Sir Frederic Eggleston was appointed Australian minister in Washington in 1944. At international conferences, during 1945, Australia repeatedly made clear her determination that the smaller components of the United Nations must be consulted regarding postwar settlements (see *Principal Events*, below).

Labor's Position.—Australia is a highly unionized country, 157 per thousand of the population being trade unionists as compared with the 91 per thousand Americans who are members of the AFL or CIO. In 1944 there were 381 unions, of which 117 were organized on a national basis; these 117 contained 84 per cent of the total membership of 1,100,000. Membership is organized on a craft basis, although a movement toward consolidation on an industry basis gained some impetus during the Second World War. Organized labor is active in politics, the Labour Party, oldest of the three main parties in Australia, being one of the world's most powerful. Since Oct. 3, 1941, the Commonwealth has been governed by a Labour administration; it was returned to power after the general elections of Aug. 21, 1943, the present government being the eighth formed by Labour of the 24 administrations since the Commonwealth was formed on Jan. 1, 1901. In Labour administrations, members of the Cabinet are elected by caucus vote, the prime minister then deciding the ministry each should head.

The instrument by which the great majority of Australian workers have their wages, hours and conditions of employment regulated is the Court of Conciliation and Arbitration, an impartial tribunal which makes awards binding on both workers and managements. While the system has not entirely eliminated strikes, it has helped to eliminate violence and the frequency of industrial disputes. A strike or lockout now only occurs if unionists or an employer should decline to recognize an award; in either case, court action for enforcement of the award, or the "deregistration" of a union may follow.

Social Services.—Australia has been one of the pioneers in social legislation, state governments having for years past provided pensions for the aged, invalids and widows, allowances to families with children, and low-cost housing for workers. The Commonwealth government has also entered the field, introducing a child endowment scheme in 1941, widows' pensions in 1942, and, in 1943, extending existing maternity allowances to cover all births without regard to income, granting allowances to wives of invalid pensioners, and providing funeral benefits for invalids and old-age pensioners. In 1943, also, legislation provided that medical prescriptions be dispensed free of cost to patients, and that a sustenance allowance be granted to a worker undergoing medical treatment. An act passed through Parliament in March 1944 provided payment to persons whose normal earnings have been interrupted through unemployment or sickness and who are not qualified to receive service, invalid, old-age or widows' pensions. In August 1944 all Australians, irrespective of income, became entitled to free hospital treatment, the federal government paying to the hospitals 6s. 2d. a day per patient. There are 6,387 medical practitioners to serve Australia's population of rather more than 7,000,000.

The outlay on social services represents nearly one half of all nonwar expenditures. The bulk of the expenditure was met from consolidated revenue generally and partly from payroll tax until the end of the 1944–45 financial year. The 1945–46 budget proposed to charge the whole of the social and health services expenditure to one fund, termed the National Welfare Fund, and as part of a general revision of taxation, a social services contribution was to be imposed from Jan. 1, 1946; the proceeds of the contributions, together with the collections from the payroll tax, were to be paid into the National Welfare Fund. The estimated income of the fund in 1945–46 was £A46,000,000, against an estimated expenditure of £A65,000,000; the shortage of £A19,000,000 was to be met from the balance of £A53,000,000 in the fund at June 30, 1945.

Agriculture and Livestock.—Approximately, 38 per cent of the country is unoccupied or is government-owned; 53 per cent is held under lease or license; 7 per cent has been alienated; and 2 per cent is in process of alienation. Some 500,000 men were engaged in rural production before the war, but by mid-1943 the number had fallen to 350,000. Early in 1944 a program was begun of releasing approximately 2,000 men monthly from the armed forces to help meet minimum food requirements. Nevertheless, Australian food production for Allied nations and liberated countries was of major importance, and during the war the government organized the Commonwealth's rural resources on national lines for the first time. At the beginning of 1945, the annual expenditure on food for the United States, British, and Australian armed forces exceeded £A100,000,000. Food production for 1943–44 was as follows:

	'000's omitted		'000's omitted
Milk for all purposes, thousand gals.	1,210	Sugar, tons	570
Butter, tons	175	Peanuts, tons	13
Cheese, tons	45	Canned fruits, cases	3,500
Eggs, dozen	100,000[2]	Dried vine fruits, tons	95
Beef and veal, tons	560[1]	Potatoes, tons	599
Mutton and lamb, tons	477[1]	Blue peas, bu.	600
Pig meats,[2] tons	143	Green peas, tons	72
Wheat, bu.	109,558	Navy beans, tons	5
Barley, bu.	7,589	Tomatoes, tons	163
Rice (paddy), tons	64	Other vegetables for human consumption, tons	502

[1] For calendar year 1944.
[2] Incl. bacon and ham at its fresh equivalent.

Food production estimates for 1944–45 were completely upset because Australia experienced one of the worst droughts in the history of the country. The farm production suffered a loss that was estimated to amount to over £A60,000,000. Milk losses directly attributable to the drought were estimated at 200,000,000 gallons; meat losses, 100,000 tons; and wheat losses, 70,-

000,000 bushels. Australian farmers hoped to lift the wheat acreage for 1945–46 to 11,500,000 acres, more than 3,000,000 acres above 1944–45. Estimates were that, given a favorable growing season, the crop may reach 150,000,000 bushels —three times the production for 1944–45; this crop would leave a surplus of 70,000,000 bushels for export. Sugar production, which had not been affected by drought, was put at 640,000 long tons for 1944–45.

At the end of 1944 there were 123,173,962 sheep in Australia, a decrease of nearly 2,000,000 from the record figure of 125,000,000 in 1942, but an increase of approximately 12¾ per cent over the number in 1939. The drought was largely responsible for a further decrease to 105,000,000 in March 1945. The number of lambs marked remained fairly steady at about 32,000,000 for each of the war years. Cattle have increased by over 1,000,000, or 8.9 per cent, since 1939; the increase has been chiefly in beef cattle, which numbered 9,000,000 in 1942, while dairy herds remained at their prewar numbers of 5,000,000. The total number of cattle, both beef and dairy, at the end of 1944 was estimated at 14,183,676. Pig raising was given a marked stimulus by the war, the number of pigs in March 1945 amounting to 1,630,000.

Production.—More wool is produced in Australia than in any other part of the world. Wool production in 1943–44 was estimated at 1,164,308,000 pounds. Owing to the drought conditions, the crop in 1944–45 was expected to be less by 132,000,000 pounds. In recent years the Commonwealth's wool textile industry has advanced steadily, in 1940–41, 407,479 bales being utilized locally. Production of minerals declined at outbreak of war because an appreciable proportion of skilled manpower entered the armed services, but with formation early in 1942 of a Directorate of Minerals the output of vital war minerals was greatly increased. Gold production in 1943 amounted to 750,863 fine ounces, valued at £A7,846,517. Compared with prewar figures, copper production increased by more than 50 per cent, and antimony by 30 per cent, while tungsten is being mined on a scale that would have been thought impossible before the war. Only the United States is a greater producer of lead and zinc than Australia. In 1943 a copper ore deposit that will yield about 140,000 tons of metal was discovered at Mount Isa, a well-established silver-lead and zinc production center. The existence was also proved of sufficient quantities of bauxite to guarantee Australia's aluminum requirements for years to come. Tantalum and beryllium are mined, as well as tin, iron, and mica, and there is an unceasing search for petroleum deposits.

During the year ended June 30, 1943, 26,414 factories engaged 759,045 persons and paid wages amounting to £A208,866,843. The total output value was £A850,348,656, of which some £A352,002,056 represented the value added by manufacturing. Australia is producing many products previously imported, notably plastics, printed textiles, canvas duck, auto tire cord, rolled aluminum sheets, soda ash, potassium salts, plywood, newsprint, rubber-insulated cables, tin plate, tool steels, wood pulp, wallboard, airplanes, airplane spark plugs, optical glasses, and watch movements. For the military purposes of the Commonwealth and Allied nations, Australia manufactured large quantities of blankets and clothing, as well as various drugs, including cholera vaccine and several antitoxins, ether, hypodermic syringes, and sulfaguanidine, the last used for the prevention and cure of dysentery.

External Trade.—Total Australian trade in 1943–44 had a sterling value of £327,132,221 (£312,348,165 in 1942–43 and £242,652,664 in 1938–39), of which £210,028,921 was in imports and £117,103,300 represented exports. The United Kingdom took 38.9 per cent of the exports, the bulk of which were foodstuffs, and 28.3 per cent went to the United States. During the financial year 1943–44, the exports of Australian foodstuffs, in millions of pounds, were as follows: butter, 103; cheese, 29; meats, 312; dried fruits, 155; and canned fruits, 17. Over the same period, 12 million dozen eggs were also exported. Increased imports occurred mostly in defense materials, raw and semimanufactured materials for industry, capital equipment for new and expanding manufacturing plants, and other "essential" commodities; the imports of nonessential goods were severely restricted.

Communications.—The *railroads* of Australia totaled 27,918 route miles in 1943; 27,213 were owned or operated either by the Commonwealth or the state governments, and 705 miles by private interests. In 1942–43, 41,906,000 tons of freight were carried, and 518,979,000 passengers transported, the train mileage being 96,110,000, compared with 1938–39, last prewar statistical year, these figures represented percentage increases of 51.39, and 27 respectively. In 1945 Commonwealth and state authorities agreed to spend some £76,000,000 through the next seven to eight years to standardize all railroad gauges at 4 feet, 8½ inches. The first and major step was the conversion of all Victorian and South Australian lines, where the present gauge is 5 feet, 3 inches, and an independent standard-gauge line will then be constructed from the Western Australian port of Fremantle to Perth and Kalgoorlie; simultaneously with these undertakings, the broad gauge line from Port Pirie, South Australia, to Broken Hill, New South Wales, will be converted.

Highways had an aggregate length of 488,749 miles in 1944. There were two outstanding achievements in the program of strategic highways constructed during the war: the North-South Road from Alice Springs, in central Australia, to Darwin, Northern Territory, built at a cost of £A2,840,000; and a highway from Mount Isa, in Queensland, to Tennant Creek, Northern Territory, costing £A1,100,000. The number of motor vehicles registered at June 30, 1945, was 853,106, (503,025 automobiles, 57,226 motorcycles, 292,855 commercial vehicles).

Shipping statistics were not available during the war. A Directorate of Shipping established July 1, 1942 reduced the tonnage of nonessential general cargo by 52 per cent within 12 months, and the carriage of defense cargoes was increased by 39 per cent, of ironstone by 78 per cent, and of steel and pig iron by 87 per cent. Much special harbor equipment was built, including mobile cranes and self-propelled floating cranes, and an effective ship salvage service was created. Sydney's new graving dock, largest in the Southern Hemisphere and one of the biggest in the world, was completed in March 1945 after four years of work. The greatest engineering undertaking in Australia's history, the dock, which cost £A9,000,000, is 1,116 feet long, 154 feet wide and 45 feet deep, with a water capacity of 57,000,000 gallons; the dock is equipped with six cranes, two of 50 tons capacity, and contains seven and one-half miles of rail tracks.

Civil aviation made great strides during the war years. In the year ended June 30, 1945, civil transport planes carried 2,011 tons of mail; 2,338 tons of freight; and 320,377 paying passengers. There were 223 public airfields in 1945 and 383 landing grounds throughout the Commonwealth; numerous additional facilities had been provided for military aircraft. The total distance flown by regular air services in 1944–45 was 12,631,544 miles. In August 1945 the airways of Australia were nationalized, a National Airlines Commission expropriating the properties of private airlines and operating a system of national routes. This nationalization has been contested by the High Court on behalf of three major airways companies. The Department of Civil Aviation continues to provide such ancillary services as landing fields and radio and other navigational aids.

Telegraphs are operated by the Commonwealth government. Before the outbreak of war Australia led the world in the use of telegraphic services, an average of 2.6 messages annually per head of the population comparing with 1.6 per head in the United States, next highest. In 1942–43, 29,569,535 telegrams were despatched, 50,129 miles of wire being used for telegraph only, and 143,992 miles for both telegraph and telephone purposes; the armed forces were also using 172,870 channel miles of voice-frequency carrier telegraph systems provided by the Commonwealth government.

Telephone service is also provided by the government. In 1943 there were 6,371 telephone exchanges, with 540,261 lines and 766,846 instruments; this represents one telephone to each 141 inhabitants, Australia holding third place among countries of the world. During the war, telephone channels were provided linking Darwin, in Northern Territory, Alice Springs, in central Australia, and all intermediate points, to both Adelaide and Brisbane; and similar facilities were provided for points in northern Queensland.

External communications by submarine cable and wireless telegraphy are maintained by Cable and Wireless, Limited. In 1942–43, 2,964,732 cablegrams were received and dispatched. Wireless telegraphy links Australia with New Zealand, the territories of New Guinea and Papua, and various small islands in the Southwest Pacific, while a "beam" system affords direct communication with Great Britain and the United States. In 1942–43, 38,043,431 words were transmitted and received overseas by beam wireless.

Radio for domestic listeners is provided by the Australian Broadcasting Commission, operated by the Commonwealth government, through 29 transmitting stations (1944). Overseas programs were received at three stations and broadcast over national stations. Alternative programs were available through commercial broadcasting stations, of which 98 were in operation in 1944. Australia ranks sixth amongst countries of the world in relation to radio licenses per head of the population. In 1944, 1,454,302 licenses were taken out, which represents 19.57 per 100 of the population.

Principal Events of 1945.—The end of the war after six years of full Australian participation was, of course, the year's most momentous event. A population of little more than 7,000,000 people had provided more than 600,000 volunteers for overseas service in Europe, Africa, and Asia, and nearly one sixth of the men had become casualties. The dimensions of the Commonwealth's war effort against Japan had been second only to that of the United States, and therefore it was understandable when Australia strongly resented the slight recognition of her contribution to victory accorded by the major powers. The minister for external affairs stated in Sydney on July 29 that the Potsdam "ultimatum" to Japan had been drawn up, delivered, and published without Australia's knowledge or concurrence, and plainly intimated that his country expected to share, not of grace but of right, in the making of armistice and peace arrangements. An even stronger protest followed the announcement on August 17 that the United States Department of State had rejected Australia's claim to a footing of equality in the peace discussions with Japan, and that Gen. Sir Thomas Blamey, commander of the Australian forces, could only "accompany" the representative of Great Britain at the surrender ceremonies. The Australian government promptly took up the matter direct with General MacArthur, and as a result the United States acceded to the Commonwealth's claim to be represented directly "in full recognition of the outstanding part Australia played in the war against Japan." The government, while professing satisfaction with this arrangement, expressed itself as deeply interested in interpretation of the peace terms in such manner as to eliminate all fears of future Japanese aggression.

Herbert Vere Evatt, Australian minister of external affairs, had already emerged during the United Nations Conference on International Organization, at San Francisco, as a most forceful champion of the rights of the smaller of the United Nations. As chief Australian delegate, he put forward 31 amendments to the charter, and 20 of them were accepted. The numerous clauses for which he had the major responsibility were those obliging signatory nations to include full employment, higher living standards, and the observance of human rights among their aims. Shortly after the Council of Foreign Ministers of the five major powers opened its discussions in London in September, Evatt arrived from Australia determined that the smaller nations should have their say. He put out a statement declaring that his government "is intent on making its contribution to a just and lasting peace," and because of his firm attitude all the British dominions and India were shortly invited to nominate representatives to attend the forthcoming meeting regarding the Yugoslav-Italian frontier.

On Oct. 14, 1941, less than two months before Japan struck, John Curtin became Labour prime minister of Australia. With the Commonwealth threatened by invasion, he imposed upon the country more stringent rationing and manpower controls than those accepted by any other of the United Nations, and gave unstinted support to General MacArthur in the ensuing campaigns against the enemy. Unfortunately he did not live to see victory brought to complete fruition, dying in office on July 5, 1945. Pending a vote to be taken by the Labour Party, Francis M. Forde, its deputy leader, was sworn in as the 15th prime minister of Australia. He served only until July 12 (the shortest term on record), when the party selected Joseph Benedict Chifley, Commonwealth treasurer, to the premiership and to leadership of the Labour forces. The selection was a popular one in the country. For many years a member of the Railway Locomotive Engine Drivers Union (as a locomotive engineer in New South Wales), Chifley had been Curtin's ablest colleague and his closest friend and confidant.

In August newly appointed Immigration Minister Arthur Augustus Calwell made a statement on postwar plans for populating Australia. He set the target in the immediate postwar years at 70,000 immigrants a year, and warned that any scheme which ignored the housing shortage which has resulted from the diversion of all manpower into war work, or which attempted to bring in more people than could be absorbed, would certainly fail. Parliament was also told by him that it had been agreed in principle with Great Britain that free passages should be granted to British demobilized service-men and women and their dependents wishing to emigrate to Australia.

The government also issued a White Paper outlining its planning for full employment in the postwar period; in the main it would be developmental public works on such projects as irrigation, railways, and roads. An important legislative act was the restoration of control of the state-owned Commonwealth Bank by a single governor instead of by a board; this was in conformity with the belief of the Labour Party that a board consisting of private bankers would not be likely, under certain circumstances, to administer the bank in the interests of the people. In major matters of economic policy the Commonwealth treasurer now has authority over the governor of the bank, and for the first time the bank can compete with private financial institutions in making loans for business as well as for agricultural purposes; the Commonwealth Bank has also been given control of the private trading banks in matters affecting the national economic policy. Among other important decisions taken during the year was that to standardize railway gauges throughout Australia (see *Communications*, above); all citizens have been provided with free hospitalization; gratuities have been added to the deferred pay already available to servicemen on discharge; and the payments by way of baby bonuses, child endowment, and old-age pensions have been increased.

Parliament enacted a measure introduced by Minister for External Territories Edward J. Ward, which provided for the restoration of civil administration in Australia-controlled territories in New Guinea. For a limited period, Australian-owned Papua and the mandated Territory of New Guinea, lying to the north of Papua, will have a common administration. The indenture system of recruiting native labor has been abolished, and improvements have been effected in the pay, hours, general conditions, and medical and educational facilities available to natives. Some concern was expressed regarding the desire of the United States to acquire a permanent naval base on Manus, an island of the Admiralty group of the Territory of New Guinea. Australians were resolved that acquisition of this base by the United States should not affect the Commonwealth's sovereign status over the island.

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AUSTRIA. Since the defeat of Germany by the United Nations, a separate administrative territory within its 1922–37 frontiers under the joint occupation of forces of the United States, the United Kingdom, the Union of Soviet Socialist Republics, and the provisional government of the French Republic. The future status of Austria has not been officially decided as yet, although various authoritative statements indicate that Austria will be again established as an independent state.

Former Status.—The Austrian Republic (32,377 sq. mi.), as established in 1919 by the Treaty of St. Germain, comprised about 12 per cent of old Austria-Hungary. Of the Austrian half of the Dual Monarchy, 26.48 per cent of the territory was ceded to Poland, 26.21 per cent to Czechoslovakia, 9.34 per cent to Yugoslavia, 7.86 per cent to Italy, 3.48 per cent to Rumania, 26.63 per cent remaining to form the new Austria. By the Treaty of Trianon, Hungary was forced to cede most of the German speaking province of Burgenland to Austria (1,558 sq. mi.) Among the European states Austria ranked 19th in size, smaller than Portugal but larger than the Irish Free State. A land-locked state, it had a frontier 1,638 miles long which was divided over against Germany 487 miles, Switzerland 101 miles, Liechtenstein 23 miles, Italy 267 miles, Yugoslavia 193 miles, Hungary 226 miles, and Czechoslovakia 341 miles. It contained approximately 13 per cent of the population of former Austria-Hungary, or 24 per cent of the Austrian half. The German census of May 17, 1939, showed a population of 7,009,014; 3,400,328 males and 3,607,695 females. Its three largest cities are Vienna (1,918,462), Graz (210,175), Linz (131,423). Complete statistics of the 1939 census are not available and other figures cited are taken from the census of March 22, 1934, the last one undertaken by the republic. Austria had few minorities, the 1934 census showing that 6,584,547 spoke German as their mother tongue, 42,251 Czech, 3,615 Slovak, 31,703 Slovene, 42,354 Croatian, 18,076 Magyar and 23,317 some other language.

The Constitution of the Austrian Republic was set aside in 1933–34 when Chancellor Dollfuss ended the democratic regime in Austria and established his version of a dictatorship. A new constitution of May 1, 1934, established what was termed an Austrian Christian Corporative State. After the murder of Dollfuss in the *Putsch* by the Austrian Nazi Party on July 25, 1934, Chancellor Schuschnigg took over and continued the government along authoritarian lines. On Hitler's occupation of Austria, March 11-13, 1938, Austria officially became the *Ostmark*, one of the divisions (Länder) of the Greater German Reich. The nine Austrian provinces were rearranged into seven Reichsgaue. A greater Vienna that extended as far as Mödling and Klosterneuburg was set up expanding the number of districts (Bezirke) from 21 to 28.

Religion.—There were in Austria (1934) 6,116,481 Roman Catholics, 295,452 Lutherans and Calvinists (Evangelisch), 191,481 Jews, 36,776 Old Catholics, 7,105 belonging to other religious bodies, and 106,080 without a particular confession. The Roman Catholic Church had two archbishoprics and four bishoprics. Up to 1934 when the free functioning of political parties ceased it was represented by the Christian Socialist Party which won 36 per cent of the votes in the 1932 election. An Associated Press dispatch of Aug. 3, 1945, quoted Cardinal Innitzer as saying that "200,000 Catholics in his archdiocese had been excommunicated because they embraced Nazism." The Nazis had not dared to close the churches, but four priests were executed, more than 200 imprisoned and many others fined heavily for "speaking out for liberty." The anti-Semitic measures introduced by the Nazis have been repealed.

Government.—It was the Russian armies which began the liberation of Austria and occupied Vienna, April 6-13, 1945. On April 29, before the other Allied armies had entered very far into

Austria, the formation of a provisional government, under Dr. Karl Renner was announced over the Moscow radio. The Soviet Union at once accorded this government de facto recognition and has supported it ever since. The British and United States governments, however, pointedly declared that they had not been consulted as to the organization and formation of this government and could not give it any recognition. (Renner subsequently declared that he had formed his government independently and had then taken steps to notify Moscow, London and Washington. Vienna, being under Russian control and censorship, his communication only reached Moscow.) On May 14 the provisional government declared Austria an independent sovereign state. By governmental decree all laws dating from the Hitlerian period were abolished, the Nazi Party dissolved, the party's property confiscated and the death penalty along with property confiscation instituted for Austrians who were still party members. All persons who were members of the Nazi Party between July 1933 and April 25, 1945, were called upon to register. At the Berlin Conference (July 17–August 2) the United States, Britain and Russia agreed that they would be prepared to examine the question of extending the authority of the provisional government to all Austria after the entry of the British and American forces into the city of Vienna.

Before the joint occupation of Vienna took place (August 23) the provisional government issued decrees for all Vienna and all Austria as well, publishing them in the *Staatsgesetzblatt für die Republik Oesterreich.* After they had arrived in Vienna the British posted specific notices that some of these decrees would take effect in their zone as if enacted by the military governor, but definitely excepted others. The United States and France treated the Renner decrees in similar fashion. Thus, not even in joint-ruled Vienna, let alone all Austria, was there anything like a common policy.

The Austrian provisional government in the fall of 1945 was headed by Dr. Renner, a 75-year-old left wing Social Democrat who had helped to organize the Austrian Republic after the First World War. He was assisted at the helm by a three man council representing each of the three co-operating political parties. These council members were ministers without portfolio and as such were members of the Cabinet. During the Austrian Republic no Communist ever won a seat in the representative body, but in the fall of 1945 they held three, if not four, governmental posts in the provisional government. The old Catholic parties were unrepresented. In order to meet the charge that his government centered too much in Vienna and did not represent all Austria, Renner called a meeting of representatives of the provinces to meet in Vienna, September 24-26. This co-opted body of provincial leaders, after having added a ministry for the Administration of State Property and an Undersecretary of Foreign Affairs to the Cabinet, endorsed the Renner government as the provisional regime for all Austria. They recommended that elections should be held before Christmas. Control of these elections was taken out of the hands of the Communist Minister of Interior Franz Khonner and given to a committee of five, which was to administer them within the Department of Interior. The committee is to be made up of two representatives from the People's Party, two Socialists, and one Communist and is to be under the chairmanship of Dr. Joseph Sommer of Upper Austria, a member of the Peoples Party. The provincial leaders also recommended that a provincial conference be called every two weeks to act as a sort of provisional parliament until the election was held. The conference in addition submitted various resolutions to the Allied Council, the organization of which is described below.

COMPOSITION OF THE AUSTRIAN PROVISIONAL GOVERNMENT

Chancellor and Minister of Foreign Affairs	Dr. Karl Renner	Socialist
Undersecretary of Foreign Affairs	Dr. Karl Gruber	People's Party
Member of the Council	Dr. Rudolph Schere	Socialist
Member of the Council	Leopold Kunshak	People's Party
Member of the Council	Johann Koplenik	Communist
National Defense	Lt. Col. Franz Winterer	Communist (?)
Interior	Franz Khonner	Communist
Justice	Dr. Joseph Göre	Non-party
Finance	Dr. George Zimmerman	Non-party
Agriculture	Rudolph Buchinger	People's Party
Industry, Trade, and Transport	Edward Heinl	People's Party
Public Instruction and Religion	Ernst Fischer	Communist
Food Supplies	Andreas Horst	Socialist
Public Welfare	Johann Böhm	Socialist
Building and Reconstruction	Rudolph Raab	People's Party
Administration of State Property	Vincent Schumy	People's Party

Some local governing bodies are functioning in the different parts of Austria but it is not clear how these are organized or how much authority they possess. The former nine provinces of Austria and the old 21 districts have been re-established.

The Allied Control Machinery in Austria as announced by the European Advisory Commission on Aug. 8, 1945, is as follows. Austria, within its 1937 frontiers, is partitioned into four allied zones of occupation. These are shown on the accompanying map. The Russian zone consists of the provinces of Lower Austria exclusive of Vienna, that part of Upper Austria on the left bank of the Danube and Burgenland; the American zone, that part of Upper Austria on the right bank of the Danube and Salzburg; the French zone, Tyrol exclusive of East Tyrol and Vorarlberg; the British zone, Styria, Carinthia and East Tyrol. Each of these four zones is under the full authority of the commander in chief of the respective forces of occupation. For the Russian zone this is Marshal Ivan S. Konev; American, Gen. Mark W. Clark; French, Gen. Marie-Emile Béthouart; British, Lieut. Gen. Sir Richard McCreery. These four commanders in chief who are to have their main headquarters in Vienna are to constitute themselves as an Allied Council. This Allied Council, along with an executive committee and staffs appointed by the four governments concerned, is to be known as the Allied Commission for Austria. Its primary tasks are "(1) to achieve the separation of Austria and Germany; (2) to secure the establishment as soon as possible of a central Austrian administrative machine; (3) to prepare the way for the establishment of a freely elected Austrian government; and (4) meanwhile, to provide for the administration of Austria to be carried on satisfactorily." The decisions of the

Allied Council which was formally established on September 11 are to be unanimous. "As soon as departments of a central Austrian administration are in a position to operate satisfactorily, they will be directed to assume their respective functions as regards Austria as a whole, and will fulfill them under the control of the Allied Commission."

The city of Vienna within its 1937 boundaries (107 sq. mi.) is divided into four zones of occupation and is to be administered by an "inter-Allied governing authority consisting of four commandants appointed by their respective commanders in chief." There are to be numerous technical staffs and the whole governmental machinery for Vienna is to be under the general direction of the Allied Council. Vienna is partitioned as follows: District I (Innere Stadt), occupied by four powers jointly; district II, IV, X, XX, XI (Leopoldstadt, Wieden, Favoriten, Brigittenau, Floridsdorf), occupied by the Soviet Union; districts III, V, XI, XII, part of XIII (Landstrasse, Margareten, Simmering, Meidling, Hietzing), occupied by the United Kingdom; districts VI, part of XIII, XIV, XV, XVI (Mariahilf, Penzing, Rudolfsheim, Fünfhaus, Ottakring), occupied by France; VII, VIII, IX, XVII, XVIII, XIX (Neubau, Josefstadt, Alsergrund, Hernals, Währing, Döbling), occupied by the United States. This division shows that there has been some gerrymandering of districts. The Russians were particularly anxious to obtain the working class districts and also to command the communication lines to the east and south. By the end of September 1945 the Allied government of Vienna had not as yet been fully organized and different regulations were being enforced in the four zones of occupation. The Renner provisional government had named General Körner as Burgermeister of Vienna and Johann Steinhard as Vizeburgermeister.

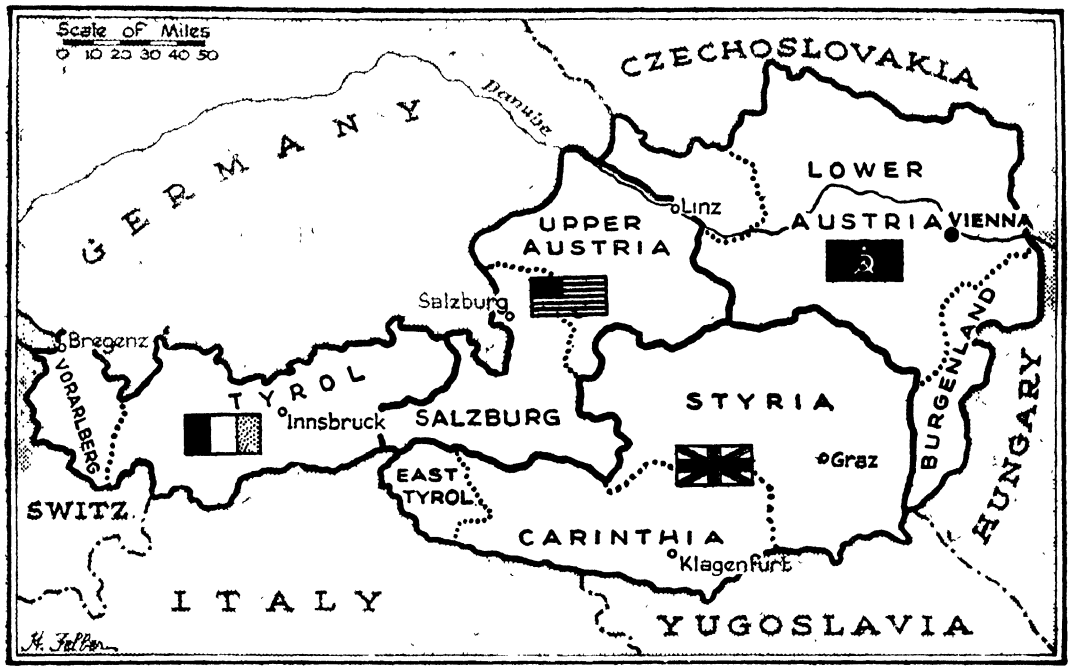
Principal Events, Oct. 1, 1944–Oct. 1, 1945.—At the Moscow Conference (Oct. 19-30, 1943) the foreign secretaries of the United States, Great Britain and the Soviet Union issued a formal declaration expressing their "wish to see re-established a free and independent Austria." At the same time Austria was warned that "in the final settlement, account will inevitably be taken of her own contribution to her liberation." This warning was repeated various times during the fall and winter of 1944–45 in official Russian, British, and American releases. An Austrian underground group in Styria and Carinthia apparently struck up relations with Tito's partisans. On the whole the activity of Austrian underground forces was not of great significance and is not to be compared in importance with the liberation movements in Greece, Yugoslavia, Poland, Bohemia, or Italy.

Russian troops crossed Austria's eastern frontier on March 30. Vienna had been placed under complete control of German S.S. troops and withstood a seven-day siege, capitulating to the Russians on April 13, 1945. It was the fourth time in its two thousand-year history that Vienna had been taken by force, by the Ostrogoths in the 5th century and twice by armies of Napoleon. Long sieges by the Turks in 1529 and 1683 and two sieges by Bohemians and Swedes during the Thirty Years' War had been withstood. On April 26-27 American troops crossed from Bavaria into Austria. The German commanders in Italy signed terms of unconditional surrender on April 29 and when these went into effect at noon on May 2, the American and British armies in Italy were reported to be within 30 miles of the Austrian border. The military agreements between the American, British and Russian armies have not been revealed, but it is clear that at least preliminary zones for military occupation had been previously agreed upon. As the British armies proceeded to occupy their sections which included Styria and Carinthia, they found that Marshal Tito had occupied part of these provinces with Yugoslav partisans. Tito centered his attention on Klagenturt, the capital of Carinthia. While there are some Slovenes in this area, the inhabitants had decided in a well-run plebiscite in 1920 to remain with Austria. Their present attitude is questionable, but Tito claimed they longed to join Yugoslavia. In any case, final decision would have to await the conclusion of the peace treaty, although effective occupation might well prove to be nine points of the law. Tito's claim to Austrian territories was closely bound up with his claim to occupy Trieste and the rest of Venezia Giulia. In a note on April 2, Tito had proposed to Russia, Britain and the United States that Yugoslav troops occupy a part of Austria. Russia had agreed to the proposal, but at this time no answer had been forthcoming from the other two Allies. The United States and Britain now protested to Tito on his occupation of Klagenfurt and Trieste. These notes, coupled with some very firm action by Field Marshal Sir Harold R. L. G. Alexander, the Allied Supreme Commander in the Mediterranean, led Tito to agree to the withdrawal of his troops from Austria (May 20). A compromise was worked out in regard to the occupation of Italian territory.

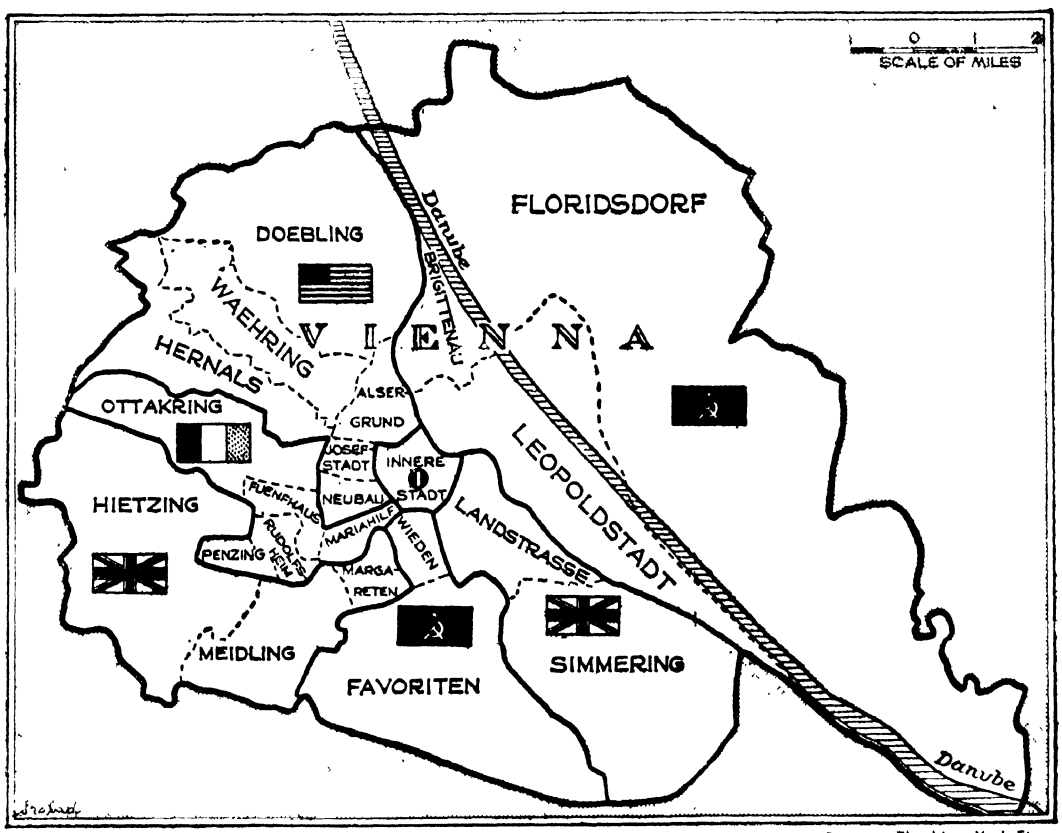
The European Advisory Commission, established in London in 1943, had the authority of the Allies to deal with the Austrian problem. During the fall and winter of 1944–45 the press carried various reports as to what Allied policy for the occupation of Austria was to be. It seems that at first the commission favored a blended Allied police force for the joint occupation of Austria. This gave way to the division of Austria and even of Vienna into three zones of occupation. On May 24 the press carried the report that there were to be four occupation zones and a four-power Allied control commission for Austria. This meant that France, no doubt as a result of decisions reached at the Yalta Conference (Feb. 3-11, 1945) was to share in the occupation. During the first days of July the French took over the occupation of Tyrol and Vorarlberg from the Americans. The Russians apparently delayed the British entry into Styria until the end of that month. Meanwhile anything like a common policy for Austria could not be worked out until the joint occupation of Vienna had been arranged. In spite of repeated press statements during June and July that the entrance of American, British and French forces into Vienna was at hand, their entry was always delayed. An American billeting party which had reached Vienna early in July was asked to leave. Finally on August 8 two statements summarizing the agreements reached by the European Advisory Commission on the control machinery and zones of occupation in Austria were released in Washington, London and Moscow. These agreements have been summarized above in the section on government.

It was not until August 23 that the commanders in chief of the American, British and French forces that were to occupy the different zones in Vienna formally entered the city. One reason given for the delay was the illness of the Russian commander in chief, Marshal Ivan S. Konev. An-

AUSTRIA



The four zones of occupation in Austria are designated by the flags of the United States, Great Britain, the Soviet Union, and France.



Courtesy *The New York Times*

Vienna was also divided into four zones as designated by the flags, with the Innere Stadt (1) under the joint control of the four powers.

other underlying cause was the failure to reach an agreement on how food was to be supplied for the starving Viennese. They had been subsisting for the past five months on a diet of less than 900 calories daily. Obviously these rations should be increased. Both French and Russian forces in their respective occupation zones were following a policy of living off the land. In addition, Russia was occupying the most productive sections of Austria and particularly those areas which had formerly supplied Vienna with most of its vegetables and other foodstuffs. For Britain and the United States to undertake to send in all the food supplies necessary would resemble the problem of filling a food basket with several large holes in the corners. More food was due Vienna from the regions from which its food supplies had always been drawn. It was finally agreed that temporarily at least each occupying army was to supply an amount of food in proportion to the population of the zone of the city occupied by it. The food was to be put in a pool and distribution was to be controlled by the Russians under the supervision of the other powers. Fortunately the problem of furnishing relief to the ill-fed and ill-clad peoples of Vienna was eased when UNRRA on August 21 voted to extend its aid to Austria as well as to Italy. The food problem, however, delayed the formation of the formal Allied Council until September 11. Soon thereafter it was announced that the Soviet Union had agreed to import from outside sources the food needed for its army of occupation.

The population of Austria suffered severely from the ravages of war during the last months of the conflict. In January 1945 the Vatican issued a public appeal that Vienna be spared and be declared an open city. Neither side took up this suggestion. In Vienna, famed St. Stephen's Cathedral was gutted as was the opera house. Extensive damage was done in the old Inner City and in some of the factory districts. The wholesale policy of requisitioning practiced by the Russian forces and the quartering of excessively large Russian forces in Austria caused great hardship. Typhus was reported as being widespread, along with extensive malnutrition. The Soviet Union requisitioned, as reparations owed by Germany, the equipment of many factories. The Renner government is reported to have refused to grant Russia half the shares in a new Austro-Russian consortium which is to take over the important oilfield at Zistersdorf. American, British and Dutch capital was invested in this field before the war. The Nazis apparently expanded its production until it equaled one fourth the total production of the Rumanian oilfields. In an attempt to get Austrian industry functioning again, the American military command arranged a barter agreement with Czechoslovakia to start on September 1, under which 350,000 tons of Austrian ore was to be exchanged for 100,000 tons of Czech coke.

The opening of theaters and the performance of various concerts have been pushed in Vienna. On August 12 the famed Salzburg music festival was revived. Before the joint occupation of Vienna many of the schools were reopened under the direction of the new Communist minister of education and religion. School prayers are banned and all schools are to be under the direction of the government. Religious instruction is to be optional and in secondary schools Marxian as well as Christian philosophy is to be a subject of instruction.

So far the different Austrian exile movements in England or the United States have not had a direct hand in Austrian affairs. The "Free Austrian Movement" in England initially announced its support of the Renner government. The strongly Catholic and pro-monarchist monthly paper *Austria* published by Octave O. Günther in New York has denounced the bolshevism of the provisional government. This paper is, of course, a strong advocate of Austrian independence and the partitioning of Germany. The wisdom of Allied policy in dividing Austria and Vienna into four zones of occupation is questioned by Austrian exiles of every political persuasion.

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AUTOGIRO. See AERONAUTICS, Section 10.

AUTOMOBILE REGISTRATION. See HIGHWAYS.

AUTOMOBILES. According to an estimate of the Automobile Manufacturers Association, 503,520 cars were scrapped in automobile graveyards in 1944. The year 1941 had been the greatest in the history of American motor vehicle production from the standpoint of value, but two years later the number of passenger cars produced dropped to zero, while virtually all motor truck production was for the army. The total number of motor vehicles manufactured in 1943 was less than in any year since 1914, and the wholesale value of this diminished production was less than in any year since 1933. The following table indicates some of the effects of the war on the automobile industry:

FACTORY SALES AND WHOLESALE VALUE, U. S. PLANTS

	Passenger cars		Motor trucks		Total	
	Number	Value	Number[2]	Value[2]	Number	Value
1940	3,692,328	$2,422,491,461[1]	777,026	$ 593,731,603[1]	4,469,354	$3,016,223,064
1941	3,744,300	2,615,697,373[1]	1,094,261	1,086,925,650[1]	4,838,561	3,702,623,023
1942	220,814	173,661,378[1]	805,264	1,366,000,000[1]	1,026,078	1,539,661,378
1943	0	0	677,115	1,340,000,000[1]	677,115	1,340,000,000
1944	0	0	749,488	1,500,000,000[1]	749,488	1,500,000,000

Reliable estimates for the 1945 motor vehicle production will not be available until the first quarter of 1946.

On Oct. 29, 1945, Chester Bowles, price administrator, and J. A. Krug, War Production Board chairman, revoked Ration Order 2-B, which permitted the sale of cars produced after July 1, 1945, only with certificates. In effect this meant that thenceforth there was to be no further automobile rationing. However, as the Office of Price Administration had not up to that time set prices for cars, and no sales could be made until such prices were authorized, manufacturers received the news with mixed feelings. The government officials stated

NOTE: Above table includes military trucks as follows: 1940—55,389; 1941—218,880; 1942—672,181[3]; 1943—672,614; 1944—624,669.

[1] Includes federal excise taxes and standard equipment.

[2] A substantial part of the trucks reported comprises chassis only, without body; hence the value of bodies for these chassis is not included. Buses, station wagons, fire apparatus, street sweepers and other special purpose vehicles are included. 1942, 1943 and 1944 values are estimates.

[3] Includes 548 military integral type buses.

as reasons for an unexpectedly early end of rationing:

"With almost 24,000,000 cars on the road, and with new automobile production started, there is no longer danger of a general breakdown of the automotive transportation system. As new car production picks up, newer and better used cars will also become increasingly available."

dar year 1944, compiled from reports of state authorities; (2) in May, a table giving 1944 state motor vehicle receipts, comprising registration fees and miscellaneous receipts; (3) in June, a table listing and analyzing 1944 state motor fuel tax receipts; and (4) also in June, a table listing the proceeds of state imposts on motor vehicles operated for hire. The totals of these various tables are shown below:

MOTOR VEHICLE REGISTRATION, TAXES, ETC., 1944

State	State motor-vehicle registrations*	State motor-vehicle receipts† 1,000 dollars	State motor-fuel tax receipts‡ 1,000 dollars	Tax rate per gal. on December 31 cents	State motor-carrier tax§ 1,000 dollars
Alabama	363,255	5,693	15,190	6	606
Arizona	141,837	1,385	4,312	5	492
Arkansas	269,992	3,947	10,692	6.5	3
California	2,818,540	30,658[1]	43,589	3	6,784
Colorado	336,182	2,649	6,347	4	1,129
Connecticut	499,452	7,048	6,750	3	992
Delaware	68,884	1,225	1,663	4	....[3]
Florida	498,996	10,783	22,078	7	682
Georgia	528,215	2,797	20,259	6	113
Idaho	150,940	1,263	4,190	5.1	120
Illinois	1,737,425	22,861	29,170	3	....[3]
Indiana	951,209	10,353	20,279	4	148
Iowa	703,898	12,051	11,032	3	411
Kansas	599,150	4,292	7,945	3	1,304
Kentucky	438,692	4,426	12,332	5	604
Louisiana	405,178	3,382	17,636	7	334
Maine	196,615	3,952	4,282	4	16
Maryland	456,580	5,832	9,573	4	....[4]
Massachusetts	834,900	6,726	13,114	3	116
Michigan	1,498,293	23,370	23,333	3	480
Minnesota	762,565	8,616	14,337	4	41
Mississippi	262,380	3,425	10,918[2]	6	300
Missouri	837,937	10,235	9,260	2	602
Montana	161,238	1,345	3,913	5	72
Nebraska	401,836	2,956	10,087	5	33
Nevada	48,362	378	1,191	4	417
New Hampshire	120,850	2,490	2,260	4	5
New Jersey	1,002,838	20,134	15,871	3	80
New Mexico	113,867	1,644	3,756	5	397
New York	2,276,526	44,053	45,351	4	17
North Carolina	611,149	9,398	22,569	6	1,513
North Dakota	182,112	1,730	2,674	4	45
Ohio	1,901,807	29,768	40,340	4	696
Oklahoma	503,135	7,240	16,067	5.5	378
Oregon	417,541	3,845	9,868	5	2,157
Pennsylvania	1,928,074	32,056	42,436	4	7
Rhode Island	173,866	2,954	2,626	3	12
South Carolina	342,145	2,322	11,579	6	392
South Dakota	180,991	1,371	3,701	4	514
Tennessee	459,499	6,014	21,675	7	147
Texas	1,573,502	25,874	40,408	4	230
Utah	156,499	1,433	3,729	4	....[3]
Vermont	85,245	2,273	1,783	4	....[3]
Virginia	538,740	7,831	16,515	5	827
Washington	614,053	4,286	15,134	5	281
West Virginia	280,995	5,742	7,699	5	212
Wisconsin	832,700	13,234	16,436	4	1,670
Wyoming	83,362	661	2,132	4	425
District of Columbia	127,259	1,478	2,869	3	337
Total	30,479,306	419,479	680,950	4.06[5]	26,141

* Including private, commercial and publicly owned motor vehicles.

† Including registration fees and miscellaneous receipts.

‡ Adjusted net total receipts.

§ Proceeds of state imposts on motor vehicles operated for hire and other motor carriers.

[1] Registration fees include proceeds of state "vehicle license fees," $14,238,000, imposed in addition to the regular registration fees of $13,497,000.

[2] Special county taxes of 3 cents per gallon in Hancock County and 2 cents per gallon in Harrison and Jackson counties, amounting to $267,000 in 1944, are imposed for seawall protection and are not included in this table.

[3] No special taxes on motor carriers reported.

[4] Ton-mile and passenger-mile taxes paid by motor carriers in lieu of registration fees.

[5] Weighted average rate.

The Public Roads Administration of the Federal Works Agency issued during 1945 several compilations: (1) in April, a table covering state motor vehicle registrations for the calen-

Exports.—Details of the automotive export trade for the years 1940, 1941, 1942, 1943, and 1944 are shown in the table on the opposite page:

VALUE OF EXPORTS FROM UNITED STATES
(Source: Motive Products Division, U.S. Department of Commerce)

	Cars and trucks[1]	Parts and accessories[2]	Rubber tires and tubes	Total value of exports[2]
1939	160,594,315	109,321,470	21,883,803	291,799,588
1940	155,090,880	117,173,166	27,520,815	299,784,861
1941	223,178,698	133,015,153	31,472,904	164,488,057
1942[3]	271,456,148	155,474,021	45,009,153	200,483,174
1943[3]	148,262,721	129,452,852	90,068,389	367,783,962

[1] Includes shipment to noncontiguous territories.
[2] Includes value of "parts for assembly" and shipments to noncontiguous territories.
[3] Excludes shipments to noncontiguous territories, Alaska, Hawaii, Puerto Rico.

AVIATION. See AERONAUTICS; CIVIL AERONAUTICS ADMINISTRATION; ELECTRICAL AND ALLIED DEVELOPMENTS.

AWARDS. See PRIZES AND AWARDS.

AZERBAIDZHAN SOVIET SOCIALIST REPUBLIC. See UNION OF SOVIET SOCIALIST REPUBLICS.

AZORES, ȧ-zōrz′, or **ACORES,** ȧ-sō′rāsh, **ISLANDS.** An archipelago of nine volcanic islands and a number of islets in mid-Atlantic, politically part of Portugal; area, 922 square miles; population (1940), 284,755. The islands lie between 36° 55′ N. and 39° 55′ N. latitude and between 25° 10′ W. and 31° 16′ W. longitude, along a 375-mile line running approximately northwest-southeast, at an average distance of about 900 miles west of Portugal.

The inhabitants are largely Portuguese in origin, with a marked strain of Moorish and Flemish blood. English, Scottish, Irish, Negro, and mulatto immigrants are numerous, especially on São Miguel and Fayal. Portuguese is the official language, and Roman Catholicism is the dominant religion.

The islands, consisting of three groups, comprise three political districts of Portugal, each of which sends representatives to the Chamber at Lisbon. The southeast group is composed of Santa Maria (Saint Mary) and São Miguel (Saint Michael). The center group, about 100 miles northwest of São Miguel, consists of Terceira, São Jorge (Saint George), Pico, Graciosa, and Fayal (Faial). Flores and Corvo, 140 miles northwest of Fayal, form the third group. The capitals of the three districts are the chief seaports: Ponta Delgada (population about 18,000) on São Miguel Island; Horta (about 7,000) on Fayal; and Angra do Heroismo (about 11,000) on Terceira.

Production.—Being of volcanic origin, the islands are subject to eruptions and violent earthquakes. Hot mineral springs are numerous, the baths at Furnas in São Miguel providing a resort for invalid tourists. The climate is temperate and the soil productive, and an industrious farming peasantry comprises the bulk of the population. Crops include cereals, vegetables, wheat, potatoes, corn, beans, fruit, meat, milk, butter, cheese, and eggs. The natives make wine from their own grapes and sugar from beets. Oranges and pineapples are grown, the latter being carefully raised in hothouses and brought to maturity by a "smoking" process locally developed. Tobacco, tea, and hemp are also raised. Linen is made from home-grown flax, and woolen garments are manufactured from sheep's wool. Other leading manufactures are embroideries, flour, alcohol, canned fish, and chicory. The most important fish yields are tuna, bonito, and mullet. Nearly all manufacturing enterprises are located on São Miguel, which is also the archipelago's largest, richest, and busiest commercial unit; it comprises nearly a third of the area of the islands and accounts for half their population.

Foreign Trade.—The Azores are for administrative purposes a part of Portugal, and official trade statistics are not published by the Portuguese government.

Domestic exports from the United States to the Azores had a total value in 1942 of $647,000; in 1943 they dropped to $249,000; and in 1944 rose to $584,000. General imports from the Azores into the United States during the three years indicated were valued at $179,000; $198,000; and $314,000 respectively. Exports from the United States to the Azores consisted principally of vegetable food products and beverages; inedible vegetable products, including tobacco; textile fibers and manufactures; coal; tinplate; and chemical specialties. The principal imports from the Azores included tuna fish in oil; cotton manufactures; flax, hemp and ramie manufactures; and ambergris.

Communications.—For many years one of the most important communications centers in the world, the Azores today, in addition to radio stations, is reached by no less than 15 cables. The islands also are important steppingstones in transatlantic aviation, and, as stated by the National Geographic Society, have been a way station for transocean fliers since 1919 when the navy plane NC-4 landed there from Newfoundland on the first transatlantic flight. In 1939 the *Yankee Clipper* made the Azores a port of call on its regular over-ocean flights. In 1945 a new airfield, reported to have cost $12,000,000, was completed and opened on Santa Maria, southernmost of the Azores. It was built by an American contractor, but up to August 1 very few details concerning it had been released to the public. Santa Maria is 2,550 miles east of New York City, approximately 1,600 miles from London, and about 865 miles west of Lisbon, Portugal.

B

BACTERIOLOGY. Individual spectacular advancements have not been made during the past year in the field of bacteriology. However, the subject has shown healthy growths along many lines. These cannot all be reviewed in the space allotted; hence, the following phases, which have shown steady consistent growth during the past few years, will be considered: (1) The study of antibiotics; (2) the use of isotopes in studying microbiological metabolism; (3) the growth of

micro-organisms in chick embryos; (4) the chemical composition of bacteria; and (5) miscellaneous advancements.

Antibiotics.—The search for new and the more careful study of known antibiotics has continued. Almost every group of organisms known produce antibiotics. *Lysozymes* have been obtained from egg white, egg yolk, milk, saliva, and tears. Osborn[1] tested approximately 2,300 plants belonging to 166 families against *Staphylococcus aureus* and *Escherichia coli* and found 63 genera containing substances which inhibited the growth of one or both test organisms. Extracts made from plants belonging to the same family yielded a substance having similar specificity and potency. Inhibiting substances were in some cases distributed throughout the plant, in others restricted to specific parts of the plant. Drying of some plants caused a loss of inhibiting powers, in others there were no losses. Certain well-known drug plants showed no inhibiting powers. Burkholder and Evans[2] tested approximately 100 different lichens for antibiotic activity against bacteria; 52 were found to inhibit either *Bacillus subtillis* or *Staphylococcus aureus* or both. Although Gram-positive organisms including several pathogenic types are inhibited, Gram-negative bacteria, with few exceptions, are generally not susceptible to the antibiotic substances of lichens. Today a careful survey of all known substances leads to the conclusion that of all organisms known which produce antibiotics the ones which are significant from a pharmaceutical standpoint are the actinomyces, bacteria, and molds.

Great advancements have been made during the past five years in the production of penicillin. The British workers in 1940 obtained one to two Oxford units per ml. of medium with surface cultures. However, select media soon made it possible to produce 20 units and today, due to extensive work by the Fermentation Division of the Northern Regional Research Laboratories of the U.S. Department of Agriculture, together with that of various pharmaceutical concerns, it is possible to produce 150 units in one ml. of media.

The importance of this advancement is recognized when it is known that the amount of penicillin required per case ranges from 100,000 units to a few million and it is estimated that one billion units of pure penicillin weighs approximately one pound.

The yield depends upon (1) the organism. Some organisms are more active producers of penicillin than are others. Roper et al[3] studied 241 different cultures belonging to the *Penicillium notatum-chrysogenum* group and found all but 24 of the strains produced measurable amounts of penicillin. No strain studied produced more penicillin than the one developed by Squibbs. Approximately 25 per cent of the strains studied produce penicillin equal to or in excess of the original Fleming strain. They concluded from their work; (a) penicillin production is characteristic of the entire *P notatum-chrysogenum* group, (b) strains vary greatly in their capacity to produce penicillin, (c) good penicillin production is generally limited to strains belonging to one of two species, *P notatum* Westing and *P chrysogenum* Thom, and (d) better producing strains are most satisfactorily assigned to the species *P notatum* Westing.

Some Aspergilli produce antibiotic substances in concentrations equal to or in excess of the penicillin.[4] *Aspergillus fumigatus* produces an antibiotic which is bacteriostatic against the BCG organism in dilution of 1:1,400,000, thus raising the hope that antibiotics will be found which are effective against *Mycobacterium tuberculosis*. (2) The quantity of antibiotic produced varies with the medium in which the organism is grown. They require accessory food substance and are all aerobic. (3) The condition under which the organisms are grown. The earliest method was the growing of the organism in bottles, flasks, and trays. This was followed by the trickle process in which the inoculated broth was allowed to flow over stones or wood shavings under aerobic sterile conditions similar to the quick vinegar method. Then came the growing of cultures in large tanks. At the end of fermentation the Mycillium is filtered, discarded, and the penicillin recovered from the broth.

Advancement in the field of antibiotics is dependent upon quantitative methods for their determination. The penicillin unit was first defined as the amount of penicillin in 50 ml. of broth required to inhibit *Staphylococcus aureus*. After the Oxford workers devised the cylinder plate test, the standard unit was redefined as the amount of penicillin which produces an inhibited zone 24 mm in diameter. This may vary greatly with the technique, hence the Oxford workers prepared a selected batch of partly purified penicillin, which was checked against the above defined unit and used as a standard. At first it was known as the Florey unit and later at Florey's request designated the "Oxford unit." This unit has become widely used in penicillin assay. The present international unit arrived at by collaborative assays of a single batch of penicillin by many commercial and governmental laboratories in this country and Great Britain, is essentially equal to the original Oxford unit, and is based on the crystalline sodium salt of penicillin with a value of 1.667 units per milligram.

Abraham and Chain[6] discovered in 1940 that some bacteria produce an enzyme, penicillinase, which destroys penicillin. It is produced by a wide variety of bacteria, yeasts, and molds. Some aerobic spore-forming bacteria and certain actinomyces are outstanding in this respect.[7] Although there is not a perfect correlation between penicillin resistance and penicillinase production of micro-organisms, yet it is believed that some penicillin resistant micro-organisms, *Mycobacterium tuberculosis* for example, owe their resistance to their ability to produce penicillinase. Although this is not the only factor determining penicillin resistance, yet the importance of it is great, for (1) if contaminants producing penicillinase enter cultures, the yield of penicillin is greatly reduced, (2) if infections are due to micro-organisms which produce penicillinase, they may not yield to penicillin treatment, (3) mixed infections, containing penicillinase-producing organisms, may not yield to penicillin treatment, and (4) the presence of penicillinase in penicillin indicated contamination.

McQuirrie and Lubmann[8] showed that the ability of a micro-organism to produce penicillinase varies with the medium in which it is grown. The enzyme is very sensitive to changes of pH, the presence of iodoacetic acid and amylacetate, and to a lesser extent, Indole–3 acetic acid. A fairly purified, dried, sterile penicillinase has been prepared, which is valuable in the testing of penicillin sterility.[9]

Cultivation of Organisms in Chick Embryos.—The advancements in bacteriology are measured by the ability to culture and study under asceptic conditions in the laboratory micro-organisms and viruses. A great advancement in this field was

made when it was learned that many obligate and near-obligate parasites may be grown in the chick embryo. The chick is usually immune to human infections, whereas the chick embryo is susceptible. Hence the chick embryo is almost a perfect medium to (1) study the diseases produced by pathogens and apply to them Koch's postulates, (2) study the morphology and physiology of pathogens, (3) study the specific lesions produced by obligate parasites. Many obligate parasites grow in the chick embryo and produce lesions similar to or identical with those produced in their natural host, (4) produce large quantities of micro-organisms or viruses for the manufacture of vaccines and study immunity and antibody production under laboratory conditions and (5) the chick embryo method, coupled with chicken red cell agglutination and inhibitation of agglutination methods, offers a quick simple means of isolating and typing of influenza viruses.[10,11]

The chick embryo lends itself especially to the growth of typhoid, diphtheria, scarlet fever, gonorrhea, epidemic meningitis, whooping cough, and some 35 obligate parasitic viruses. It is cheap, readily available, uniform in composition, self-nourishing, and free from infection. Moreover, the multiplication of the organism can be watched and controlled.

A window is cut in the shell leaving the membrane intact to serve as a hinge where desired, to close the flap. The window is cut with a sharp knife or preferably a dentist's drill. The organism to be studied is inoculated into the chorioallantoic membrane. A glass cover may be sealed into place with sterile vaseline and the egg incubated for the required time, usually from two to four days. This has been very successful in the production of vaccines for typhus fever, Rocky Mountain spotted fever, small pox, and many others.

Various methods have been used for the preparation of vaccine viruses, but unsatisfactory results are usually obtained with killed viruses. This failure has been interpreted as due to (1) immunity enduring only so long as viruses are present in the tissues. Killed viruses are soon removed, hence immunity is of short duration, (2) viruses as produced in the past have not been concentrated enough to produce effective vaccines.

The work of Stanley[12] apparently overcomes the latter difficulty. He grew the influenza virus in the chick embryo and concentrated it by centrifugation. This vaccine possesses 20 or more times the immunizing potency of the usual commercial vaccine. After carefully checking the physical and chemical factors involved in the concentration, he concluded that very effective vaccines may be produced in this manner.

The Use of Tagged Molecules in Studying Animal Metabolism.—During recent years, the use of tagged molecules has clarified many obscure points in animal metabolism.[13] This is done by introducing into the product to be studied, either heavy isotopes or radio-active isotopes and determining the occurrence of these tagged molecules in the tissues or products produced or occurring in the living organism. This method has been carried over to a study of bacterial metabolism and gives promise of clarifying some complexities which could not be unraveled by previous methods. Werkman and associates are pioneers in this field.[14] They showed that *A indologenes* in the presence of glucose condenses acetic acid containing C^{13}, the isotopic heavy carbon, to succinic acid. The C to C-linkage created in the condensation involves the C atom originally present in the methyl group of acetic acid. The results are believed to offer the most direct evidence for participation of acetyl-aldehyde as an intermediate in the formation of 2,3 butylene glycol. Later $CH_3C^{13}H_2CH_2C^{13}OOH$ was isolated from butyl alcohol fermentation of corn mash to which $CH_3C^{13}OOH$ was added. The distribution of the C^{13} in the molecule supports the suggestion that butyl alcohol is formed by a condensation of acetic acid or its derivative.[15] The fixation of CO_2 in the carboxyl group of lactic acid has been shown by means of $C^{13}O_2$ to be a major reaction in the fermentation of glucose by *Cl. butylicum* in the presence of bicarbonate.[16]

The mechanism of the butyl alcohol fermentation by *Cl. acetobutylicum* and *Cl. butylicum* was investigated with the following labeled compounds: $CH_3C^{13}OOH$, $CH_3 \cdot C^{13}H_2 \cdot CH_2 \cdot C^{13}OOH$, and $CH_3 \cdot C^{13}O \cdot CH_3$. The labeled compounds were added to corn mash fermentations; the products of fermentation were isolated and their C^{13} content determined. The position of the labeled C^{13} within the carbon chain was determined in the butyl alcohol, acetone, and isopropyl alcohol.

Results with $CH_3 \cdot C^{13}OOH$

1. The C^{13} was recovered in butyl alcohol, acetone, isopropyl alcohol, butyric acid, acetic acid, ethyl alcohol, and CO_2.

2. The butyl alcohol contained approximately 50 per cent of the added C^{13}. It is therefore obvious that added acetic acid is not converted quantitatively to acetone or isopropyl alcohol, as has been previously reported.

3. The labeled carbon in the butyl alcohol was in the carbinol and B-positions, and the concentration of C^{13} is approximately the same in these two positions. It was suggested that the molecule is synthesized from acetic acid or a derivative. There was no evidence of the preferential union of acetate with an intermediate compound from starch.

4. The acetone or isopropyl alcohol accounted for 15 to 19 per cent of the added C^{13}. The labeled carbon was exclusively in the carbonyl and carbinol groups respectively.

5. The C^{13} recovery in the CO_2 was approximately the same in the acetone and isopropyl alcohol. This fact, together with established position of the C^{13} in the acetone and isopropyl alcohol, is in agreement with the suggestion that acetone is formed from acetate.

6. It is suggested that the butyric acid, butyl alcohol, and acetone may have a common precursor which is formed from acetate or a derivative of acetate.

Results with $CH_3 \cdot C^{13}H_2 \cdot CH_2 \cdot C^{13}OOH$

1. The C^{13} was recovered in butyl, ethyl, and isopropyl alcohols, and acetic and butyric acids.

2. Approximately 85 per cent of the added C^{13} was present in the butyl alcohol. The labeled carbon was in the carbinol and β-positions. It is suggested that butyric acid is a precursor of butyl alcohol.

3. The conversion of butyric acid to acetic acid, acetone and isopropyl alcohol may be a reversible series of reactions through aceto-acetic acid. The location of the labeled carbon in the acetone and isopropyl alcohol is in agreement with this proposal.

Results with $CH_3 \cdot C^{13}O \cdot CH_3$

1. The C^{13} was recovered in isopropyl alcohol. The presence of labeled carbon in other products could not be reliably detected.

2. Evidence is presented which indicates that acetone is an intermediate in the formation of isopropyl alcohol.[17]

When pyruvic acid is dessimilated by *E coli* extract in the presence of $HC^{13}OOH$ the residual pyruvate contains excess C^{13} in the carboxyl group, which is evidence for reversibility of the pyruvate split.

When pyruvic acid is broken down in the presence of $CH_3C^{13}OOH$ and of adenyl-pyrophosphate, the residual pyruvate contains excess of C^{13} in the carbonyl group.[18]

A question which has plagued the bacteriologists for centuries is, what organisms can fix atmospheric nitrogen? This question came to the fore when it was found that *Rhizobium* and *Azotobacter* both possessed the ability to fix nitrogen when grown under appropriate conditions. Since these discoveries, claims have been made that numerous micro-organisms possess this ability. The use of isotopic N^{15} has made it possible to specifically answer this question, and it is done by culturing the organisms in free nitrogen and then testing for combined N^{15}. This demonstrated that a number of species of Azotobacter, *Clostridium pasteurinum* and blue-green algae, *Nostoc muscorum* fix appreciable quantities of nitrogen.[19] Greaves and Greaves[20] demonstrated in 1932 that some actinomyces possess the ability of fixing free nitrogen when living in the soil. Now, Plotho[21] has substantiated these findings and also isolated an actinomyces from the alder and reproduced the alder root tubercles by its addition to plants that had been germinated aseptically.[22] Frei[23] reports nitrogen fixation by several film-forming yeasts and one mold. Moreover, the use of N^{15} in the study of nitrogen fixation substantiates the theory that the first product in nitrogen fixation is ammonia.[24]

Composition of Bacteria.—The discovery that immunological properties and chemical composition are related gave a great impetus to the study of their composition. Some thirty types of pneumococci possess different polysaccharides in their capsule. These are related to type specificity. Moreover, pathogenic bacteria vary in the colony produced. Smooth (S) colonies are different in composition from rough (R). Smooth may loose their capsule and become R and at the same time decrease in virulence. Avery[25] and co-workers isolated from the smooth type III pneumococci a substance, probably a polymerized desoxyribonucleic acid, which in small quantities transformed the R to the S type. Hence, it is possible to change a non-virulent R-type to a virulent S-type, possessing different immunological properties.

Analyses[26,27,28] of influenza virus A and B and swine influenza virus show them to contain polysaccharides, proteins, and desoxyribonucleic acid and from 21 to 24 per cent lipid. The latter consist of neutral fats, phospholipids, and cholosterol.

The members of the vitamin B complex are absent from tobacco mosaic virus, which has been interpreted as indicating that they are inanimate.[29] However, this may be associated with their obligate parisitic nature, as they lack the needed enzymes for individual growth and metabolism.

An extensive study has been made of the composition of the gonococcus.[30] Two nucleoprotein fractions were obtained, one contained considerable combined lipid. Three different forms of carbohydrates occurred but no type specific carbohydrate was found. However, Boor and Miller[31] obtained glucolipids which were moderately toxic for animals and antigenic for rabbits. A polysaccharide has been obtained from *Cl. perfringes* which is common to most members of this group.[32]

Work continues on the composition of tuberculin. Glycogen has been isolated from this material. It has been claimed that hyaluronidase acid is associated with the virulence and spreading properties of hemolytic streptococci and pneumococci but recent work has failed to substantiate this.[34,35]

Miscellaneous.—A study[36] of *Bacterium tularense* shows it to be extremely polymorphic. It possesses neither capsules nor flagella and is non-motile. Its morphologic units include globi and globules, flat and cylindrical bacillary forms, coccoid forms and delicate filaments. All forms seem to possess multiple modes of reproduction with budding apparently the more general. Complex morphological nuclear changes have been shown to occur when some sporulating micro-organisms pass into the spore form.[37] Aerobic and anaerobic bacteria differ in that the former contain lipoprotein granules as reserve material whereas anaerobic bacteria do not.[38] The irregular staining of *malleomyces mallei* (Glanders organism) is attributed to the presence of lipodial granules within the protoplasm. These fail to stain with the aniline dyes, but do so with sudan black.[39]

Evidence continues to accumulate that carriers and contact play a role in the spread of some cases of poliomyelitis.[40,41] Extensive studies have confirmed the earlier belief that the oral cavities of new born infants are sterile and that the flora is gained during the first few weeks after birth. However, there is small tendency for some pathogens to gain a foothold. This is attributed to a lack of biological adaptation on the part of the micro-organisms and not to immune globulin of maternal origin.[42]

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BAHAMAS. A West Indian archipelago constituting a British colony. The Bahamas extend from Florida to Haiti, and consist of some 20 inhabited islands and numerous islets and rocks. The principal islands are New Providence (on which is situated Nassau, the capital), Mayaguana (on which the United States secured naval and air bases on lease in 1940), San Salvador (or Watling's, upon which Christopher Columbus is supposed to have landed in October 1492), Great Bahama, Harbour, Cat, Long, Eleuthera, Great Abaco, Exuma, Crooked, Andros, Acklins, and Great Inagua. The land area is 4,404 square miles, and the population was estimated in 1942 to amount to 73,217, 85 per cent of the inhabitants being colored. A governor (William Lindsay Murphy succeeded the Duke of Windsor on July 29, 1945) is assisted by an Executive Council of eight, a Legislative Council of nine nominated members, and a House of Assembly of 29 elected members. This last body unanimously rejected the proposal made by the British government in 1945 that the West Indian colonies should give consideration to the feasibility of federation. Colonial revenue for 1943 was £614,000, and expenditure was placed at £544,000.

Primary education is compulsory between the ages of 6 and 14. There were 10,731 pupils enrolled in government schools in 1942, and 3,159 in denominational elementary schools; a government secondary school had 62 pupils, and three private secondary schools had 394 pupils. Turtle and sponge fishing were once the chief industries of the colony; in 1939 the sponge fisheries were closed because marine disease had killed off all growth, and it was not until 1945 that the government considered it possible to reopen them. Pearls and ambergris are also found, and sisal hemp and tomatoes are produced for export. Although the drought experienced early in 1945 was the worst for many years, the 1944–45 winter crop of tomatoes was excellent, 150,000 pounds being shipped to the United States and Canada. Silk production is a new industry, Osigian mulberry saplings imported in August 1944 being sold below cost by the British Caribbean Silk Company, which also supplied the necessary silkworm eggs. Exports in 1943, principally sisal and sponges, had a value of £425,000; the United States was the principal customer. The United States was also the chief importer; total imports in 1943 were valued at £1,527,000. While British currency is the legal tender, United States notes of $5 upward are accepted. A new road on Eleuthera, 71 miles in length, was completed in 1945 from Gregory Town to Bannerman Town. Radio telegraphy links all the inhabited islands; and the radio telephone connects Nassau with Hialeah, Fla., and thence all parts of the world. Owing to the salubrious climate, the islands are a popular winter resort, visitors contributing substantially to the islanders' income. In 1945 six airlines were considering the inclusion of Nassau in their itineraries. See also under BRITISH WEST INDIES.

BAHRAIN (BAHREIN). See ARABIA.

BALEARIC, bălē-ăr'ĭk, **ISLANDS,** Span. **BALEARES,** bä'lä-ä'räs, a group of 4 large and 11 small islands in the Mediterranean Sea east of Spain, of which they form a province. The principal islands are Mallorca (Majorca), Menorca (Minorca), Iviza (Ibiza), and Formentera. The group has a total area of 1,935 square miles, and a population (1941) of 410,060. Palma (pop. 115,346), on Mallorca, is the capital. The islands were occupied successively by the Romans, the Vandals, and the Moors, and were captured in 1232 by James I, king of Aragon. Immediately thereafter, under the third son of James I, they were formed into an independent kingdom, which was later united with Spain, to which the Balearics (except for brief periods) have since belonged. The principal agricultural products of the islands are almonds, olives, figs, and other fruits. A considerable number of pigs and some sheep are exported. Mineral products include lignite, sea-salt, superphosphates, coke, and cement. Among the handicrafts are shoemaking, and the production of laces and embroideries, ornamental pottery, and silver filigree. Mahon (pop. 18,000), on Menorca, has a fine harbor, which handles much of the trade of the islands.

BALKAN STATES, the states of the Balkan Peninsula somewhat loosely defined, including Yugoslavia, Albania, Greece, European Turkey, Bulgaria, and Rumania (qq.v.). Rumania and part of Yugoslavia lie north of the Sava-Danube line, to which some writers refer as the northern limit of the peninsula. The total population of the Balkan States at the opening of the Second World War was upwards of 50,000,000.

During the 19th century and the early decades of the 20th, the Balkan States, freeing themselves one by one from Turkish rule, became the scene of a series of wars and war threats which caused them to be known as the "powder keg of Europe," and as the "everlasting Balkans." The unsettled condition of these states during the period in question, due in part to their diverse religious and national interests, was accentuated through the repeated pressure and intervention of the great powers, intent on safeguarding their spheres of influence or in extending their economic or territorial control. Long before the Second World War the term "Balkanization" was being applied generally to the process by which powerful states sought to divide the peoples of small neighboring countries into mutually hostile religious or nationalist factions, the better to dominate them. Some commentators were assuming that the differences among the Balkan peoples were irreconcilable, and some accepted this theory as a justification for continued foreign intervention.

The peace settlement following the First World War, which created the Kingdom of the Serbs, Croats, and Slovenes (later Yugoslavia) left a series of unresolved boundary disputes. Popular unrest in the period between the wars, attributed in part to the inadequacies of the peace settlement and in part to the constrictions of foreign capital upon the local economies, was countered by the establishment of a series of near-Fascist dictatorships in all the Balkan States. Growing Axis encroachments led in 1939 to the Italian invasion of Albania, in 1940 to Italy's invasion of Greece, and in 1941 to the German invasion of Yugoslavia, and Axis domination of the Balkans. Most of the territory of the Balkan States was freed by the end of 1944, through the efforts of the native liberation forces—especially in Yugoslavia, Greece, and Albania—in cooperation with the Allied armies, the process being completed in the spring of 1945 with the collapse of Germany.

Meanwhile, the theory that differences among the Balkan peoples were irreconcilable was being vigorously denied in practice, especially by supporters of the national liberation movement in Yugoslavia. A federated Yugoslavian state emerged

(the foundations of which had been laid in 1943) which its exponents claimed would enable each of the Yugoslav national groups to achieve full political and cultural development, while enjoying the advantages of partnership in a strong and democratic federal union. At the middle of 1945 anti-Fascist governments of national unity were functioning in Bulgaria and Rumania under Allied (predominantly Soviet) supervision. In Greece, where British forces had intervened to insure a regime friendly to Great Britain, the government was encountering reportedly growing opposition by the more active elements of the liberation movement. See also WORLD POLITICS.

BALLET. See DANCE.

BALTIC STATES. See ESTONIA; LATVIA; LITHUANIA; USSR.

BANKERS ASSOCIATION, American. See AMERICAN BANKERS ASSOCIATION.

BAPTIST CHURCHES. The Northern Baptist Convention.—The Northern Baptist Convention, one of the four major groups among some 20 groups of Baptists in the United States and Canada, and with about 1,500,000 members among 10,500,000 in the United States alone, reported a membership in 1945 of 1,570,446. Although Baptists have no general authoritative head, but are guided in their activities as individuals and churches by their state conventions and a general national council, with local associations, city mission societies, and several administrative boards and councils for their missionary and educational activities, they accomplish, nevertheless, an immense amount in these directions.

During the year ended April 30, 1945, there emerged two or three tendencies and programs which were outstanding. First, the denomination launched a two-year program to meet the needs arising especially from the physical devastations of war, and for the financial adjustments necessitated thereby. On the other hand these efforts, both at home and abroad, entailing the raising of $14,000,000 in money, will be supplemented by two so-called "crusades" to enhance the internal values within the denominational fold itself. One of these is already known as "The Christian Life Crusade" and the other as "The World Mission Crusade," which involve a leadership of considerably over 1,000 laymen and women. It is expected to rebuild demolished churches and schools abroad, and to relieve suffering; and at home to strengthen churches, missions and educational institutions, weakened by present conditions, besides amplifying philanthropic activities.

The foregoing process is effecting widespread co-ordination among the Northern Baptists. At the same time, while the missionary and educational forces show this type of synthesis, the theological elements of the denominational life display a tendency to wider cleavage, which may result in the making of new history. Over against this situation is another almost contradictory: The Southern Baptist Convention, nearly three times as large as the Northern, and much more conservative on the whole, has shown a tendency to resolve the theological differences between the two conventions into forms of co-operation in missionary and educational work, which seems to be as it should be.

In this direction, the Committees on Public Relations, in both conventions, together with that of the National Baptist Convention, incorporated, (colored) with several million members, have augmented their purposes by their plans to form an agency located in the city of Washington, D.C., to represent the public interests, there, of all Baptists in the country.

Some problems arose in the convention year 1944–45, owing to inability to hold a convention in 1945, on account of governmental wartime regulation; but since the same officers held office as in the year previous, these problems were generally solved. Dr. Anna C. Swain continued as president; and not only has been the second woman to lead the convention in the 38 years of its history, but thus far has been the only woman to preside two years, which she has done with remarkable vigor and wisdom. During the year, her administration was recognized by an additional honorary college degree, received from Brown University—her alma mater.

During the year, the promotion agencies of the denomination selected as their executive director Dr. Reuben E. Nelson to succeed Dr. Earl F. Adams, who served with notable success for six years.

The general statistics for the Northern Baptist Convention for the year were as follows:

Number of churches	7,314
Membership of churches	1,570,446
Total admission to churches by baptism	49,255
Number of Sunday schools	6,948
Sunday school enrolment	901,002
Operating expenditures of churches	$20,470,926
Total beneficences of churches, including missions	$6,313,350
Value of church property	$194,150,792

The convention conducted its missionary work as usual in the foreign countries of the Western Hemisphere, but of course it was greatly hampered in the Eastern—though not so much in Africa as in Europe and Asia—and in the Philippines.

(C. M. G.)

The Southern Baptist Convention.—This body of the Baptist denomination is now celebrating its first centennial, having been organized at Augusta, Ga., May 8, 1845. At that time the convention embraced 14 cooperating state conventions with 212 district associations; in 1945 the convention comprised 20 states and 925 district associations. In 1845 there were only 4,117 churches (congregations) with 351,951 church members; in 1945 there were 25,965 churches with 5,667,926 church members. In 1845 there were only 2,005 ordained ministers in the convention; in 1945 there were 24,011. In 1845 there were only 1,218 Sunday schools, with 78,900 enrolled; whereas in 1945 there were 24,626 Sunday schools with 3,380,630 enrolled. In 1845 there were only about 2,000 church houses valued at $5,000,000; whereas in 1945 there were 24,165 church houses and church property valued at $254,740,714. In 1845, there were only 13 schools and colleges, with 700 students and school property and endowment amounting to $500,000; whereas in 1945 there were 61 schools and colleges, with 22,005 students, and property and endowment of $67,241,594. In 1845, Southern Baptists gave only $27,012 to all missions and benevolences; whereas in 1944 they gave $17,303,519. For the statistics of the Southern Baptist Convention see Table on page 93.

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(P. R.) PORTER ROUTH,
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SOUTHERN BAPTIST SUMMARY, 1944

Items	1943	1944	Gains and losses
Associations	921	925	4
Churches	25,790	25,965	175
Ordained ministers	23,311	24,011	700
Baptisms	202,301	218,223	15,922
Church members	5,493,027	5,667,926	174,899
Sunday schools	24,503	24,626	123
Sunday school enrolment	3,332,978	3,380,630	47,652
Baptist Training Unions	49,200	48,879	loss 321
B.T.U. enrolment	777,732	759,885	loss 17,847
W.M.U. organizations	38,695	39,667	972
W.M.U. contributions	$4,673,455	$6,387,599	$1,714,144
Church houses	23,906	24,165	259
Pastors' homes	4,724	5,045	321
Value of church property	$248,168,495	$259,740,714	$11,572,219
Gifts to local purposes	$49,611,443.62	$59,295,901.27	$9,684,457.65
Gifts to missions and benevolences	$13,455,640.22	$17,303,518.97	$3,847,878.75
Total all gifts	$63,067,083.84	$76,599,420.24	$13,532,336.40

Baptists in United States and World

Baptist bodies	1943	1944	Net gains and losses
Negro Baptists	4,162,332	4,202,332	gain 40,000
Northern Baptists	1,556,112	1,555,914	loss 198
Southern Baptists	5,493,027	5,667,926	gain 174,899
Thirteen small bodies	572,640	572,640	.....
Total in U.S.	11,784,111	11,998,812	gain 214,701
Total in world (1941)	13,314,620		

BARBADOS. A West Indian island, east of the Windward Islands, constituting a British colony. The area is 166 square miles, and the population on Dec. 31, 1943, was estimated to amount to 202,588. Bridgetown (pop. 70,500), on Carlisle Bay, in the southwestern part of the island, is the capital and principal seaport. A governor (Sir Henry Grattan Bushe appointed October 1941) is assisted by an Executive Council, a Legislative Council of 10 nominated members, and a House of Assembly having 24 elected members. The budget for 1944–45 was estimated at £1,007,000, and expenditure was put at £1,170,000. There are 126 primary schools with 29,695 pupils in 1943, eight second grade schools with 1,288 pupils, two first grade schools for boys with 669 pupils, and a first grade school for girls with 295 pupils. Codrington College, with 16 students, is affiliated with Durham (England) University.

Agriculture is the mainstay of the population, 68,000 acres of the total of 106,000 being under cultivation. Sugar is the staple crop, though shipping difficulties during the war caused a large decrease in production. It was estimated that the 1945 sugar crop would amount to 130,000 tons, this figure including 20,000 tons of fancy molasses. For the same period, 1,103 acres of sea island cotton were expected to yield 165 bales of 400 pounds each. Sweet potatoes, cassava, aloes, and tamarinds are also of economic importance. More than 1,000 people are engaged in commercial fishing, the value of the annual catch being about £20,000. Besides sugar and molasses, rum, whale oil, and building lime are exported. Total exports in 1943–44 were valued at £2,338,530, and imports amounted to £2,937,036; the principal imports were cotton textiles, lumber and wood manufactures, foodstuffs, and iron and steel goods. Highway mileage totals 545, of which 272 miles are main roads. There is a good telephone service throughout the island, and cable and wireless external communication. The British West Indian Airways and the Royal Dutch Airlines serve Barbados. See also under BRITISH WEST INDIES.

BARITE AND BARIUM CHEMICALS. Record quantities of barite were produced and consumed in the United States during 1944, according to the United States Bureau of Mines. The output for 1944 was 515,136 short tons, 20 per cent over the 429,298 tons in 1943, and 7 per cent greater than the previous record, 483,391 tons in 1941. The quantity of crude barite sold or used by producers in 1944 amounted to 518,617 tons valued at $3,558,489 at mine-shipping point, compared with 420,343 tons in 1943 valued at $2,796,776. Sales of barium chemicals were 73,470 short tons in 1944 valued at $7,740,318, compared with 77,869 tons valued at $8,314,537 in 1943. Lithopone sold or used by producers was 142,905 tons valued at $11,208,891 in 1944, compared with 135,723 tons valued at $10,745,305 in 1943.

BARLEY. The Department of Agriculture on October 1 estimated the 1945 barley crop of the United States at 277,246,000 bushels as compared with the 1944 crop of 284,426,000 bushels and the 1934–43 average crop of 273,481,000 bushels. North Dakota led in production in 1945 with a crop estimated at 57,336,000 bushels. California was second with 40,122,000 bushels, and South Dakota was third with 33,615,000 bushels.

BARTOK, Bela, Hungarian composer and pianist: b. Nagyszentmiklós, Yugoslavia (then in Hungary), March 25, 1881; d. New York City, Sept. 26, 1945. One of the most important and original figures in modern music, Bartók was also an outstanding specialist in musical folklore, a teacher of wide repute, and the chief and most representative Hungarian composer of the contemporary period.

Bartók made his first public appearance as a pianist and composer at the age of 10. He studied piano and composition with László Erkel in Pressburg (now Bratislava) from 1893 to 1899; and then entered the Royal Academy of Music at Budapest, where he studied piano with István Thomán and composition with Hans Koessler. Graduating from the academy in 1903, Bartók was appointed professor of piano there four years later. About 1905, Bartók, together with his fellow composer, Zoltan Kodály, began to rebel against the popularized and corrupt versions of Hungarian folk music then current, and resolved to seek the authentic Magyar folk tradition among the peasantry. He collected more than 6,000 folk songs of Magyar, Slovak, Rumanian, and Transylvanian origin, and in 1913 brought back 200 Arab melodies from a visit to Algeria.

In 1911 he joined with Kodály to found the New Hungarian Musical Society for the encouragement of contemporary Hungarian music. Bartók first visited the United States in 1927, and returned for a second time in 1940, when Columbia University conferred upon him the degree of doctor of music and commissioned him to transcribe the Milman Parry collection of Yugoslav folk music recordings. Shortly before his death, he was elected a member of the Hungarian Parliament.

Intense dynamism and rhythmic strength have been the chief characteristics of Bartók's music throughout his career, from his early composition's based on national sentiment and racial idioms, to the works after 1920, when he achieved complete maturity and independence. His compositions include the one-act opera, *Duke Bluebeard's Castle* (1911) and two mime-plays, *The Wooden Prince* (1915) and *The Miraculous Mandarin* (1919); *Dance Suite* (1923), Music for Strings, Percussion, and Celesta (1935), Divertimento for Strings (1939), and Concerto for Orchestra (1943); three piano concertos, a rhapsody for piano and orchestra, and a Concerto for Two Pianos, Percussion, and Orchestra (1941); Violin Concerto (1938), Viola Concerto (1945), and two rhapsodies for violin and orchestra; six string quartets, three violin sonatas, and a Rhapsody for clarinet and violin (1938); *Cantata Profana*, for soli, chorus, and orchestra (1930); Piano Sonata (1926), *Mikrokosmos* (1935), and numerous other piano pieces; also many transcriptions of folk songs.

BASEBALL. See SPORTS.

BASKETBALL. See SPORTS.

BASUTOLAND, South Africa. A native territory under British administration, geographically within the Union of South Africa, but politically not part of it. The Cape of Good Hope province lies on the southeast, and Natal on the east, while the Orange Free State is across the north and west borders of Basutoland. The territory has an area of 11,716 square miles, and at the 1936 census it contained 559,377 natives; the 1,434 white men comprise officials, missionaries, and traders, and there are 341 Indians, and 1,259 of mixed blood. Basutoland is the "Switzerland" of South Africa, consisting of range after range of high mountains, and deep, narrow valleys between them; most of the country is under snow in winter, and there is a high rainfall. Malaria is unknown, and tuberculosis rare. Administratively, Basutoland, the Bechuanaland Protectorate, and Swaziland (qq.v.) are "High Commission Territories in South Africa," sole legislative authority being vested in a high commissioner (Sir Evelyn Baring appointed in 1944); the high commissioner, under the general direction of the Dominions Office, in London, is also high commissioner for the United Kingdom in the Union of South Africa. His functions in Basutoland are exercised by a resident commissioner (Lieut. Col. C. N. Arden Clarke appointed August 1942), who resides at Maseru, the capital. Government revenue in 1943–44 amounted to £547,242, and expenditure was £420,203. The entire country constitutes a single native reserve, a monarchical, aristocratic state under a paramount chief, who has executive and judicial authority; since the death of Paramount Chief Seisso in 1941, the country has been under a regent, one of his widows whose elder son will succeed to the chieftainship when adult. The Basutoland National Council is a sort of native parliament, five of its 100 members being elected annually as a standing executive committee for the country. It was announced in 1945 that the paramount chief and National Council would be consulted henceforth before laws are enacted affecting the Basuto nation. District councils to be established would each elect one member of the National Council; and others were to be nominated jointly by the paramount chief and the resident commissioner.

Educationally, Basutoland is one of the most advanced territories in Africa. Though school attendance is not compulsory, the percentage of literacy is high. There are 900 schools, most of them government-operated or in receipt of state aid; besides secondary schools, there is one high school taking pupils to university matriculation standards, and opportunities are afforded for higher education in the Union of South Africa. The technical schools turn out excellent craftsmen. In 1945 the British government made a grant of £31,750 for expansion of vocational training and improvement of the high school.

Basutoland is primarily agricultural, the principal crops being wheat, corn (maize), and sorghum; the estimated yields in 1943 were, respectively, 360,000, 720,000, and 324,000 bags (of 200 pounds). The territory is the only part of Africa where Canadian hard wheat is cultivated successfully. Other crops include barley, beans, and peas. Cattle are not plentiful (little more than half the number of human beings), but there is an important sheepbreeding industry; in 1943, 7,321,667 pounds of wool, valued at £243,891, were exported. The Basutos are a nation of horsemen, their hardy ponies having a high reputation in Africa. Basutoland is treated as part of the Union of South Africa for customs purposes, receiving 0.88575 per cent of the total customs collected on imports into the Union. There are few roads in the country, two-thirds of all transport being by pack animals; construction of new motor roads and improvement of existing roads was undertaken in 1945 through a grant of £86,000 by the British treasury. A spur line of 16 miles links Maseru with Marseilles, a station on the Bloemfontein-Natal line of the South African railroad system.

BAUXITE. According to the United States Bureau of Mines, the domestic mine production of bauxite dropped sharply in 1944 as the result of the accumulation of excessively large stocks and of decreased demand. The output of crude bauxite in 1944 totaled 3,721,135 short tons (3,162,571, dried basis) compared with 8,156,551 tons (6,980,829 tons, dried basis) mined in 1943, a drop of 54 per cent. The 1944 output was valued at $14,402,497 compared with $30,659,900 in 1943. Shipments of crude bauxite from mines to processing plants, consuming plants, and government stockpiles in 1944 totaled 3,676,498 tons (3,124,605 tons, dried basis), a decrease of 53 per cent from 1943. Imports of bauxite in 1944 decreased 64 per cent from 1943, dropping to 627,716 short tons, the lowest since 1939.

BEANS, Dry Edible. The United States, and other bean-eating countries which it may help to supply, will have to get along on somewhat slimmer rations in 1946, if the Department of Agriculture has made no error in its recent forecast. According to the October 1 estimate, the 1945 crop totaled 14,850,000 bags of 100 pounds each, whereas the 1944 crop totaled 16,128,000 bags, while the 1934–43 ten-year average crop was 15,942,000 bags. Michigan remained the big bean producing state with a 1945 crop of 3,989,-

000 bags, while California was a close second with 3,967,000 bags. Texas produced 1,909,000 bags.

BECHUANALAND PROTECTORATE, South Africa. A native territory under British administration, north of the Union of South Africa and south of Northern Rhodesia, bounded on the northeast by Southern Rhodesia, and on the west by South West Africa. The area is 275,000 square miles, and the native population amounted in 1936 to 260,064; with 1,899 whites (officials, missionaries, and ranchers) and 3,793 Indians and persons of mixed blood, the total population was 265,756. Much of the country forms part of the Kalahari Desert; elsewhere the soil is poor and rainfall uncertain. Malaria is common, and because of the presence of the tsetse fly, epidemics of sleeping sickness are not uncommon. Administratively, it is one of the "High Commission Territories in South Africa" (See BASUTOLAND); the resident commissioner of the Bechuanaland Protectorate (A. D. Forsyth Thompson) has his headquarters at Mafeking, in British Bechuanaland (part of the Cape of Good Hope Province of the Union of South Africa). With the exception of one mineralized area of 2,000 square miles and several blocks owned and operated by white ranchers, the whole of the Bechuanaland Protectorate is occupied by eight distinct tribes, each with its demarcated reserve of land. There is a strong tribal consciousness, each tribe having autonomy and maintaining its own courts and treasury; the eight ruling chiefs and their principal counsellors constitute a native advisory council, which consults with the resident commissioner. Serowe (pop. 30,000) is the capital of the Bamangwato, the principal tribe. The country is relatively poor, the revenue in 1943–44 amounting to £361,133, and the expenditure being £293,490. Since 1940 the protectorate has received grants from the British treasury totaling £338,747 to be spent on 14 schemes for the development of education and improvement of health and communications facilities. Natives and missionaries jointly manage the schools, maintained for the most part by the native treasuries; in 1943 there were only 128 schools for natives in the entire country. Cattle-rearing is the predominant interest of the people, and the chief source of their wealth. The number of cattle is estimated at 836,843, and there are also 551,091 sheep and goats. Statistics of exports and imports are included with those of the Union of South Africa, the Customs Department of which pays a fixed annual percentage of its receipts to the protectorate. The Bechuanaland Railway, part of the main route from Capetown to the Belgian Congo, is operated by the Rhodesia railway administration.

BEER-HOFMANN, Richard, Austrian poet and dramatist: b. Vienna, 1866; d. New York City, Sept. 26, 1945. The last important survivor of the brilliant Viennese neoromantic group which included Arthur Schnitzler, Herman Bahr, and Hugo von Hofmannsthal, Dr. Beer-Hofmann was best known for his Biblical verse plays, *Jaákobs Traum* (1918) and *Der Junge David* (1933). Dr. Beer-Hoffman attended the University of Vienna and as a young lawyer published his first book, *Novellen,* in 1893. His most famous poem, *Schlaflied für Miriam,* appeared five years later, and in 1900 his only novel, *Der Tod Georgs,* was published. *Der Graf von Charolais* (1905), Beer-Hofmann's version of the 17th century tragedy, *The Fatal Dowry,* by Massinger and Field, was widely performed in Austria and Germany and won the *Volksschillerpreis.* During the early 1900's he began his major work, a dramatic trilogy entitled, *Die Historie von König David,* to include a prologue, *Jaákobs Traum; Der Junge David; König David;* and *Davids Tod.* The prologue, *Jaákobs Traum,* written between 1909 and 1915, was presented by the Burgtheater in Vienna and by Max Reinhardt in Berlin after the First World War; while *Der Junge David* took over 25 years for completion. Dr. Beer-Hofmann was an extremely slow literary artist, writing only when he felt he had something to say. Six words a day were reported to have been his average pace. At the suggestion of Max Reinhardt, from 1928 to 1930 he supervised the production of Goethe's *Iphigenie auf Tauris,* both in Vienna and Berlin; and in 1932, the centenary year of Goethe's death, he adapted *Faust,* Parts I and II, for performance by the Vienna Burgtheater in one evening. After the German invasion of Austria, he spent some time in Switzerland and then came to the United States in 1939. In May 1944 he received the American Academy of Arts and Letters award for distinguished achievement. Among his other works are *Gedenkrede auf W. A. Mozart* (1906); *Vorspiel zum König David,* written in 1916 and published in 1931; *Das Goldene Pferd,* a pantomime written in 1921 and published in 1930–32; and *Herbstmorgen in Österreich,* a volume of memoirs completed in 1944.

BELGIAN CONGO. A Belgian colony in west central Africa, with an estimated area of 902,082 square miles, a native population, principally of Bantu origin, numbering (1944) 10,389,155, and a white population of 34,888, of whom 22,668 are Belgians, 2,594 Portuguese, 1,428 Italians, 1,370 British, 3,293 Greeks, 580 Dutch, 454 French, and 613 Americans. There are six main native languages. King Leopold II of the Belgians was recognized by the Powers in 1884 as sovereign of the territory, which was annexed to Belgium on Nov. 15, 1908. Under the administration of the Minister of Colonies, the Belgian government is represented in the colony by a governor general, who is aided by a vice governor general, one or more state inspectors, and six provincial governors. The Legislative Chambers consider the budget and yearly report on the administration of the colony. The Belgian Congo is divided into 6 provinces and 16 administrative districts, each of which is further divided into numerous administrative territories. The districts of Ruanda and Urundi, formerly part of German East Africa, with an area of 20,152 square miles and an estimated population of 3,767,002 (December 1943) and 2,169 Europeans, became Belgian territory as mandatory of the League of Nations, and were united administratively with the Congo under a vice governor in August 1925. Pierre Ryckmans, as governor general of the Belgian Congo, visited the United States in April 1944 as a guest of the State Department.

Production.—The country in most areas is fertile and productive. There are extensive forests of oil palms, supplying an increasing trade in palm oil, palm kernel oil, and palm nuts. Cotton, fibers akin to jute, rubber, and coffee are successfully grown. Other products are copal gum, sugar, lumber, maize, groundnuts, bananas, cacao, rice, hides and skins, beeswax, and ivory. Léopoldville, the leading city, now ranks first in Africa in the manufacture of textiles, cement and beer. Mining is the chief industry, minerals in-

cluding copper, diamonds, gold, silver, tin, cobalt, uranium, radium, zinc, manganese, tantalite, and iron. In the Katanga District there are enormous deposits of copper and a large supply of radium. Gold production in 1941 amounted to 18,517 kilograms, and the diamond output was 9,133,757 carats. Exports in 1943 comprised 188,704 metric tons of copper, 10,541 tons of tin, 8,596 tons of cassiterite (72 per cent tin content), 14,872 kilograms of gold, 10,237,000 carats of diamonds, 99,115 tons of palm oil. Compared with the average output for the period 1937–39, industrial production in 1943 increased 130 to 200 per cent. Normally the Belgian Congo supplies the world with more than two thirds of its industrial diamonds.

Transportation.—On Jan. 1, 1942 there were 3,106 miles of railway in the colony, 53,775 miles of highways, and 6,864 miles of navigable waterways. There are regularly scheduled air services between Léopoldville and Lagos (Nigeria), Léopoldville and Stanleyville, Stanleyville and Elisabethville, and Stanleyville and Usumbura. Before the Second World War and the German occupation of Belgium, there was a weekly air mail service between Elisabethville and Léopoldville and Brussels (6,368 miles). This has been re-established since the liberation. The Pan American Airways service between Miami and Léopoldville instituted in November 1940 was suspended in December 1944, following the loss of the *China Clipper* at Trinidad. Regular sailings between New York and Matadi are operated by the Barber Steamship Lines and the Booth American Shipping Corporation. Post offices number 146. There are 65 wireless and 78 telegraph offices with 4,209 miles of telegraph lines and 4,000 miles of telephone lines.

Foreign Trade.—In 1944, imports into the Belgian Congo were valued at 2,918,000,000 Congolese francs; exports at 4,621,000,000. Imports into and exports from the Ruanda-Urundi Territories amounted respectively to 111,000,000 and 189,500,000 million francs. The United States was by far the largest single supplier and purchaser, accounting for approximately 40 per cent of the imports and one-third of the exports. Its purchases consisted mainly of metals and ores, palm oil, fibers, gum copal, and rubber; its shipments, of basic steel items, machinery, rolling stock, automotive vehicles and parts, oils and greases, pharmaceutical products, textiles, enamelware, canned foods, and flour.

BELGIUM. A kingdom of Europe, lying north of France and southwest of Holland. It has an area of 11,775 square miles and an estimated population (Dec. 31, 1941) of 8,257,392. Brussels, the capital, had in 1938 a population (with its suburbs) of 912,774. Other large cities, with their populations in 1938, are Antwerp (273,317), Ghent (162,858), and Liége (162,229). The kingdom of Belgium was set up in 1830 as the result of a revolution against the Netherlands, of which it had been a part since 1815. Its neutrality was guaranteed by the powers in 1831, and it was formally recognized as the kingdom of Belgium by all the states of Europe in 1839. Under the Belgian constitution (of 1831) legislative power was vested in a king, a Senate, and a Chamber of Representatives. On Feb. 23, 1934, Leopold III was crowned king, after the death of his father, Albert, on Feb. 17, 1934. On May 10, 1940, Germany, without a declaration of war, launched a blitzkrieg invasion of Belgium, the Netherlands, and Luxembourg, with land and air forces. On May 28, King Leopold III surrendered his armies to Germany, himself remaining in Belgium as a prisoner of war. The Belgian constitutional government fled, first to France and then to England (October 1940). King Leopold refused to form a puppet government under the Nazis or to collaborate with them. By June 3, 1940, the entire country was under Nazi occupation. On May 18, 1940, Hitler proclaimed reincorporation into the Reich of the Belgian districts of Eupen, Malmédy, and Moresnet, ceded to Belgium by the Versailles Treaty (1919). The German occupation of Belgium continued amid growing opposition by the resistance movement (especially from February 1944) until the expulsion of the Germans by the Allied armies during September (1944). In the meantime, on September 8, Prime Minister Hubert Pierlot and most of his Cabinet had returned from London to Brussels.

Production and Industry.—The full effect of the German invasion of Belgium on the country's production and industry is not yet completely known. Many factories were excessively operated by the Germans during the occupation, and as a result most of the industrial equipment was worn out. Moreover, during the battle for the Rhine, the Germans launched a large number of robot bombs on key industrial points, causing extensive damage. For instance, the most important industrial center, Liége and its suburbs, was 65 per cent destroyed by robot bombs after the liberation of Belgium.

Of the total area of prewar Belgium (3,065,660 hectares), 1,832,453 hectares were under cultivation in 1938.

The country's greatest mineral resources are coal, iron, and zinc ores. Coal production under normal conditions approximates 30,000,000 metric tons annually; pig iron over 3,000,000 metric tons; steel, over 3,000,000 tons. Zinc production approximates 220,000 metric tons a year.

Belgium is normally a highly industrialized country, manufacturing products including cotton fabrics, linen goods, woolen goods, chemicals, cement, tiles, window and plate glass, table glass, furniture, rolled steel and zinc, railroad equipment, and lace. Before the war there were 36 sugar factories, 9 sugar refineries, 19 distilleries, 1,223 breweries, 27 margarine factories, 47 vinegar factories, and 9 match factories.

Finances.—The total public debt on Dec. 31, 1940, amounted to 74,393,000,000 francs, including 12,843,000,000 francs of 1914–18 war debts and 3,059,000,000 francs representing the postal checking accounts. Excluding these two items, the public debt amounted to 58,491,000,000 francs, compared with 46,254,000,000 on Dec. 31, 1939. By July 1, 1945 the total public debt had grown to 215,000,000,000 francs, the increase being caused mainly by German levies. The cost of occupation alone amounted to 12,000,000,000 francs a year. Budget estimates for 1945 amounted to 30,000,000,000 francs.

Communications.— Belgium had 6,560 miles of roads in 1938, of which 5,580 were state roads. Navigable waterways (rivers and canals) totaled about 1,000 miles, exclusive of the 70-mile Albert Canal from Liége to Antwerp, opened for traffic in 1939. Railways in January 1939 totaled 3,189 miles of main line, and 3,879 miles of provincial lines. About 10 per cent of the tracks were destroyed by the Germans during the occupation. Post offices in 1938 numbered 1,733; and in the same year there were 6,194 miles of telegraph lines, and 1,950,470 miles of telephone line in

service. The merchant fleet on July 1, 1939 comprised about 200 vessels of 408,418 tons net; the fleet was reduced to 88 vessels of 353,997 gross tons at the beginning of 1940, and still further losses were sustained in 1940 and 1941. However, many Belgian merchant ships, which had been torpedoed, were later replaced, and in 1943 and 1944 the Belgian Merchant Marine did its part in the Allied war effort, carrying war materials to the fighting fronts.

Principal Events, 1945.—Completely liberated in September 1944, Belgium, a few months later, went through the terrible experience of a second German invasion in one and the same war. In the early hours of December 16, Field Marshal von Rundstedt launched a last counter-offensive which knifed deeply into the Allied lines covering southern Belgium and northern Luxembourg. By December 28, when the German drive through the Ardennes was brought to a halt before it could reach the Meuse River, roughly one fifth of Belgium was again in German hands,—but not for long. The Nazi thrust was broken decisively in the "Battle of the Bulge" and by late January all of Belgium was liberated once more. The cost, to the Belgians, of the short-lived re-invasion was fearful; most of the neat Ardennes towns overrun by Rundstedt's drive lay in ruins and hundreds of civilians had been wantonly massacred by the returning Gestapo. In the following months, the loss of civilian life, and wholesale destruction of buildings, continued on an even greater scale as the Germans kept two of Belgium's principal cities, Antwerp and Liége, under continuous fire by robot bombs and V–2 rockets, in the futile attempt to cut the supply lines feeding the Allied invasion of Germany. Antwerp stood it for six full months, with 2,917 persons killed and 57,000 houses destroyed; Liége lost 27,000 houses in three months, and counted over one thousand dead.

Premier Hubert Pierlot and his Cabinet resigned February 7 in the face of widespread and increasingly vocal opposition, especially from the former resistance movement. Prince Charles, regent of Belgium, then invited Achille van Acker, Socialist leader and labor minister in the Pierlot Cabinet, to form a new government. He succeeded on February 11 in bringing about a coalition ranging from the conservative Catholic Party to the Communists; of the former "London government," only one member, Foreign Minister Paul-Henri Spaak, was retained.

A new and far more serious crisis broke out in Belgium after the liberation, early in May, of King Leopold who had been confined in a German prison camp near Salzburg, in the last phase of the war. The king, owing to his capitulation in May 1940, his subsequent marriage to a commoner, and also because of his headstrong character and alleged authoritarian leanings, had lost most of the popular sympathy he once enjoyed. All Belgian political parties, with the sole exception of the Catholics, opposed the king's return to his throne; the most determined opposition came from the former resistance movement which felt it had been let down by the king during the hard years of German occupation.

His manifest unpopularity notwithstanding, Leopold made public his determination to return to Brussels and resume his royal functions which had been exercised, since liberation, by his younger brother Charles. Premier van Acker and other political leaders vainly attempted to change the king's mind during a series of flying visits to his new headquarters at St. Wolfgang, Austria. When Leopold made actual preparations to return, van Acker's Cabinet on June 16 tendered its resignation to the regent amid indications that a general strike would be called and grave disorders would break out as soon as the king set foot on Belgian soil. In the face of this determined opposition, Leopold desisted and the Cabinet remained in office. However, on July 17 the Catholic Party withdrew its six representatives in the government and announced that it would return to the opposition. This move of Leopold's supporters was instantly followed by an act of Parliament which in effect exiled the king for an indefinite period. The crisis ended on July 26 when the Chamber of Deputies gave van Acker a 95 to 68 vote of confidence. Late in August it was learned that King Leopold had applied for permission to live in Switzerland and would shortly take up a residence in a villa on Lake Geneva. He arrived there on October 1.

The purge of collaborationists was conducted in Belgium with greater severity than in any other liberated country of northwestern Europe. The courts passed out death sentences freely—1,150 up to June 1, 1945,—most of them in absentia, however; about 28,000 were held for trial. However, Belgium's arch-traitor, the Rexist chieftain Léon Degrelle, who had served with the Wehrmacht on the eastern front, succeeded in escaping to Spain in a German plane. The Spanish authorities steadfastly rejected Belgian and Allied demands for the extradition of Degrelle.

Belgium's economic situation continued grave throughout the year, despite steady progress in many fields. The winter of 1944–45 was unusually severe, adding to the country's transportation difficulties by freezing the waterways. As elsewhere in Europe, coal was the chief problem. Lack of fuel caused widespread unemployment in industry and hampered the restoration of transport facilities. Although imports from the United States and other countries rose steadily, the Belgians manifested some dissatisfaction at the slow delivery of vitally needed supplies. The cessation of lend-lease in late August did not affect Belgium as it did other European countries, for in the case of Belgium reverse lend-lease had long exceeded lend-lease by a vast margin. According to an official Belgian statement, by August 15 the United States had supplied Belgium with $22,820,520 worth of goods, as compared with Belgian deliveries to the United States in the amount of $102,600,000. In the words of the statement, "the balance is therefore very much in Belgium's favor and it is hoped that deliveries from the United States will be intensified to make up the big difference." The United States, in mid-October, recognized a lend-lease balance of $90,000,000 in favor of Belgium and agreed to speed up deliveries to that country.

BELIZE. See BRITISH HONDURAS.

BELLAMANN, Henry (Heinrich Hauer Bellamann), American author, musician, and educator: b. Fulton, Mo., April 28, 1882; d. New York City, June 16, 1945. Successful both as a writer and as a music educator, Dr. Bellamann is best known to the general public for his best-selling novel, *King's Row* (1940), a frank chronicle of life in a small Midwestern town which was adapted into a popular film. He studied piano in Europe with Isidor Philipp and organ with Charles M. Widor. After his return to the United States, he served from 1907 to 1924 as dean of the School of Fine Arts of Chicora College for Women at Columbia, S.C. He was chairman of

the examining board of the Juilliard Music Foundation, 1924–26, and dean of the Curtis Institute of Music, 1931–32. Dr. Bellamann's first book, *A Music Teacher's Notebook* (verse) was published in 1920, and his first novel, *Petenera's Daughter* in 1926. Later novels include *Crescendo* (1928); *The Richest Woman in Town* (1932); *The Gray Man Walks* (1936); *Floods of Spring* (1942); and *Victoria Grandolet* (1944).

BELORUSSIAN SOVIET SOCIALIST REPUBLIC. See UNION OF SOVIET SOCIALIST REPUBLICS.

BENCHLEY, Robert Charles, American writer and actor: b. Worcester, Mass., Sept. 15, 1889; d. New York City, Nov. 21, 1945. One of the most versatile and successful humorists in America, Mr. Benchley was an author, playwright, columnist, dramatic critic, radio star, and motion picture comedian. According to Stephen Leacock: "None excels Robert Benchley in the ingenious nonsense of verbal humor. As a writer of nonsense for nonsense's sake, he is unsurpassed." Benchley's success as an actor depended on his uncanny ability to mimic the average man, bewildered, always trying to put a little better appearance on things than the facts warranted, and chuckling off his own discomfiture.

Benchley attended Phillips Exeter Academy and was graduated in 1912 from Harvard, where he had served as editor of the *Lampoon*. He was employed in the advertising office of the Curtis Publishing Company (1912–14), and then worked in the personnel department of the Russell Paper Company in Boston (1914–15). In 1916 he was named associate editor of the New York *Tribune Sunday Magazine*, and the next year, editor of the New York *Tribune Graphic*. During 1917–18 he served as secretary to the Aircraft Board in Washington, D.C. After the war, he became managing editor of *Vanity Fair* (1919–20); conducted a column, "Books and Other Things," in the New York *World* (1920–21); and was made dramatic editor of *Life* (1920–29), and an editor in 1924. In 1929 he became dramatic critic of *The New Yorker*, a post he held until 1940. His first recorded appearance on the professional stage came in 1923, when he delivered his famous monologue, "The Treasurer's Report," for the *Music Box Revue*. In 1929 he began appearing in movie-tone shorts for the Fox Film Company, and in 1937 was signed by Metro-Goldwyn-Mayer as writer, director, and actor. Among his better known short subjects are *The Love Life of the Polyp; How To Vote; How To Sleep* (which won the Motion Picture Academy Award for the best movie short of 1936); *An Evening Alone;* and *Raising a Baby*. He had also appeared in occasional feature pictures, including *The Reluctant Dragon; Week-end at the Waldorf; Kiss and Tell; Duffy's Tavern;* and others. Since 1937 he had at various times appeared or acted as master of ceremonies on radio broadcasts. Among his books are *Of All Things* (1921); *Love Conquers All* (1922); *Pluck and Luck* (1925); *The Early Worm* (1927); *No Poems* (1932); *From Bed to Worse* (1934); *My Ten Years in a Quandary* (1936); *After 1903, What?* (1938); *Inside Benchley* (1942); and *Benchley Beside Himself* (1943).

BENDIX, Vincent, American engineer, inventor, and industrialist: b. Moline, Ill., 1882; d. New York City, March 27, 1945. Founder of the Bendix Helicopters, Incorporated, Vincent Bendix was responsible for automotive devices and improvements in the world of transportation and aviation that ranged from the early Bendix self-starter to the modern helicopter. His self-starter made automobile self-starting practicable and has been used on more than 65,000,000 cars. He later introduced into the United States the first volume production of 4-wheel automobile brakes. His other products include generators, radio direction apparatus for ocean-going vessels, magnetos, laundry machinery, and landing gears. He founded the Bendix Aviation Corporation in 1929, and under his direction it became one of the leading industries in the field. He resigned as chairman of the board of this company in 1942, and formed Bendix Helicopters, Inc., to develop a popular type helicopter four-passenger sedan for mass production after the war. Mr. Bendix was the founder and sponsor of the Bendix Transcontinental Air Race and donor of the Bendix Trophy. He also sponsored the International Glider Meet at Elmira, N.Y., and a trophy awarded at these competitions.

BENES, Eduard, Czechoslovak statesman: b. Kožlany, Bohemia, May 28, 1884. On May 10, 1945, after the German surrender, Czechoslovakia's President Beneš returned to his nation's capital after six-years' exile, and began the task of rebuilding his country and re-establishing its independence. Beneš has fought for the existence of a free Czechoslovak state since 1915, when with Thomas Garrigue Masaryk, Czech philosopher-statesman, he organized the Czechoslovak nationalist movement, and subsequently founded the Republic of Czechoslovakia, officially recognized by Britain, France, and the United States in 1918.

In December 1943, President Beneš was present at the signing of a 20-year friendship and mutual assistance pact between his country and Soviet Russia. A champion of co-operation with the Soviet throughout his years of public service, he has consistently maintained that the Soviet Union represented the forces of peace, not war. He was also convinced that the Second World War could not be won without that ally's help, and is equally convinced that the peace cannot be secured without the closest collaboration with Russia.

President Beneš has published numerous books and pamphlets on politics and political science. Among his more recent works in English are the following: *Germany and Czechoslovakia,* 2 vols. (Prague 1937); *Czechoslovakia's Second Struggle for Freedom* (London 1940); *Democracy Today and Tomorrow* (New York and London 1940); *The New Order in Europe* London 1941); *Towards a Lasting Peace* (London 1941); *Future of the Small Nations and the Idea of Federation* (London 1942); *The Organization of Post-War Europe* (New York 1942); *The Way to Victory* (London 1942); *What Would Be A Good Peace* (London 1943); *Czechoslovak Policy for Victory and Peace* (London 1944).

BENTONITE. In 1914 bentonite production increased 14 per cent to over a half million tons, and for the sixth consecutive year established a new record, according to the United States Bureau of Mines. Bentonite sold or used by producers in 1944 was 546,768 short tons, valued at $3,605,988, as compared with 480,202 tons, valued at $2,997,754 in 1943. Although consump-

principal expansion was in rotary drilling mud. Bentonite owes its growth in this market not only to the increase in the number of holes drilled but also to the greater average depth and to the relatively higher proportion of holes drilled with rotary rather than cable equipment. Consequently, whereas in 1944 one third more oil wells were drilled than in 1943, 76 per cent more bentonite was consumed in drilling mud.

BERMUDA. A group of 360 small islands in the western Atlantic ocean, 580 miles east of Cape Hatteras and 697 miles from New York, constituting a British colony. Not more than 16 of the islands are inhabited, the largest being the Main Island, St. Georges, St. Davids, Somerset, and Ireland. The aggregate land area of all islands is 19.3 square miles, and the population in 1942 numbered 32,857, of whom more than half were colored. Hamilton (pop. 2,978), the capital, is located on the Great Sound, Bermuda or Main Island. In 1940 the United States obtained on a 99-year lease an air base at the eastern end of St. Georges and a naval base at the western end, together aggregating one twentieth of the total area of the island, and in 1941 Tucker and Morgan islands, in the Great Sound, were also leased for aviation purposes; Ordnance Island, though not leased, was also used by the United States as a submarine base until July 6, 1945, when it was restored to the colonial authorities. In 1944 a Royal Canadian naval base ("H.M.C.S. Somers Islands") was commissioned in St. Georges for training purposes; it was closed in August 1945. The governor (William Addis became acting governor in 1945) is assisted by Executive and Legislative councils, with seven and nine nominated members respectively, and by a House of Assembly of 36 elected members; Bermuda's Parliament is the oldest in the British colonies. The budget for 1945 showed an estimated revenue of £782,100 and expenditures of £838,-123; at the beginning of 1945 the colony's reserve fund amounted to £308,000. While education is compulsory between the ages of 7 and 13, the government conducts no schools, giving grants in aid to 29 of the 43 primary schools; there is also a garrison school and a naval school. Some 1,400 acres of Bermuda's 12,360 acres are under cultivation. Onions, potatoes, and green vegetables, together with cut-flowers and lily bulbs, are produced in large quantities, mostly for export; total exports in 1943 were valued at £158,553. Imports in 1944 totaled £2,456,678, representing a decrease of £125,078 over the figures for 1943 (£2,581,756); in 1944 most imports came from the United States (£1,666,077), Canada taking second place (£498,455).

The climate is mild, and the islands are frequented as a health resort. Hotels were reopened for civilian use in 1945, and United States passports were no longer required for entry. The currency, weights, and measures are British, although considerable American currency is in circulation. Automobiles are not allowed, tourists covering the island by horse carriage or bicycle. While disclaiming any legal obligation, the United States government offered in March 1945 to surface, at a cost of $428,000, 18¾ miles of Bermuda's main roads damaged by motor traffic since inception of the American bases, the colony to pay $150,000, estimated to be one third of the value of damage caused by other vehicles. A clause in the Bermuda lease provided that after the war United States personnel shall not use motor vehicles without the permission of the local authorities; the House of Assembly considered in 1945 a request that the two American commanders be allowed to operate cars for personal use after the war. Passenger ship sailings from New York to Bermuda were resumed in August 1945, and the Bermuda Airways Company was formed to operate a service between the colony, the United States, and Canada.

BERNADOTTE, Folke, Swedish count: b. c.1894. In late April 1945, Count Bernadotte served as intermediary carrying a German offer of surrender from Heinrich Himmler to Britain and the United States, and took back the answer that only unconditional surrender to all the Allies, including Russia, would be acceptable. An active goodwill ambassador in fostering Swedish-American relations before the Second World War, Count Bernadotte arranged and supervised the exchange of prisoners between Germany and the Allies during hostilities as vice chairman of the Swedish Red Cross. In peace years, he headed the Swedish delegations to the Chicago and New York World Fairs. He is a nephew of Sweden's King Gustav; his father renounced his rights to the throne to marry a commoner. Count Bernadotte's wife is the former Estelle Manville of Pleasantville, N.Y.; he has two sons.

BESSARABIA. See RUMANIA; UNION OF SOVIET SOCIALIST REPUBLICS.

BETTER BUSINESS BUREAUS. The end of the war brought a change in emphasis to the work of the Better Business Bureaus. Whereas during the war they were active in combating wartime deceptions, they thereafter turned their attention to postwar problems related to the advertising and selling of merchandise, securities and service.

As public agencies of private business, the Better Business Bureaus serve to combat fraud and misrepresentation, for the protection of consumers and investors and of honest business. Much of their work is of an educational and preventive nature—seeking to stop losses before fraudulent or unfair practices have made real headway. For the postwar period they have adopted an expanded program of service and usefulness to the public.

A prime purpose of the Better Business Bureaus is to protect the purchaser of war bonds and others who have stored up savings against loss at the hands of the scheming and the unscrupulous. Accordingly, these voluntary agencies of business have set as their goal increased vigilance in those fields most vulnerable to exploitation. They include the securities field, real estate, new businesses, general merchandise, employment opportunities, solicitations of doubtful character and questionable practices by advertising media.

As a corollary to this, the Better Business Bureaus in 1945 devoted increased attention to protecting the returning veteran. In particular, they acted to protect him against the pitfalls of starting a new business. At the same time, they investigated numbers of enterprises which were seeking to attract veterans as investors. These services to veterans, free of charge, are being continued. The bureaus published, early in 1945, a helpful booklet entitled *Facts Veterans Should Know Before Starting a Business.* Following the advice contained in that booklet, it is believed, will help a veteran to guard against investing in any enterprise before investigating it properly and thoroughly.

As a means of maintaining public confidence

in retailing and of insuring fair competition, the Better Business Bureaus prepared a *Guide for the Advertising and Selling of Government War Goods.* In it are contained a series of recommendations designed to help retailers avoid misrepresentations in advertising and selling this merchandise. By following these suggestions, it was believed, retailers could contribute to an orderly disposal of these surplus goods, without public confidence being impaired as a result of misrepresentation.

In October 1945, these bureaus began the distribution of a new, revised edition of a *Guide for Retail Store Advertising and Selling*—existing since 1930—which has for the past 15 years been a standard source of information on the accurate description of merchandise, and is in constant use by retailers.

Wartime misrepresentations of merchandise quality and various instances of advertising related to black markets, engaged the attention of the bureaus in the first half of 1945, and they obtained good results against rackets trading on the general shortage of goods, and distributed protective information to the public on questionable appeals for solicitations.

There are now 90 Better Business Bureaus in chief cities throughout the United States and Canada. More are being established. They are all members of the National Association of Better Business Bureaus, which functions as a conference group. In addition, there is the National Better Business Bureau, with offices in New York City, which acts exclusively in the field of national advertising and selling.

The bureaus are voluntary, non-profit agencies of business which are supported entirely by the annual subscriptions or contributions of their members. Their membership includes companies in the principal branches of commerce, finance and industry, including, of course, advertising media, newspapers and other periodicals, radio stations, and so on.

Acting upon inquiry and complaint, the bureaus give facts and protective information, without charge, to all who seek them. Upon complaint, or on their own initiative, they investigate fraud and misrepresentation in all forms of advertising and selling. Although not government agencies in themselves, they enjoy the co-operation of the prosecuting and regulatory agencies of government, federal, state and local, in their voluntary work to combat fraud and unfair practices.

H. J. KENNER,
General Manager, Better Business Bureau of New York City, Inc.

BEVIN, Ernest, British labor leader and statesman: b. Winsford, Somerset, England, March 9, 1881. On July 27, 1945, Mr. Bevin replaced Anthony Eden as British foreign minister, after Labour's sweeping victory in Britain's first general election since 1935. As minister of labour and national service in Churchill's coalition government, he created a labour supply board, outlawed strikes, and mobilized British manpower for his country's war industry.

Perhaps his greatest achievement in the labor field came in 1922, when he amalgamated 45 unions into a national body known as the Transport and General Workers' Union. He was the union's general secretary until May 1940, when he became labour minister in the Churchill government; he resumed the union secretaryship in May 1945.

In 1926, while a member of the Trade Union Congress, he took a prominent part in the general strike, a nationwide movement which collapsed largely through Churchill's efforts. In 1931, he stood unsuccessfully for Parliament from Gateshead. He was elected chairman of the general council of the Trade Union Congress in 1936, and was re-elected the next year for a second annual term. Shortly after he became labour minister in 1940, he was elected to the House of Commons to represent the Central Wandsworth constituency of London, and in October 1940, was given a seat in the small inner war Cabinet.

After Germany's defeat, Mr. Bevin worked out plans for the release of all conscripted women in factories, and for the partial demobilization of the armed forces. In May 1945, he resigned his post in the coalition Cabinet to campaign for the election of a labour government. On July 28, as new secretary of state for foreign affairs, Mr. Bevin accompanied Prime Minister Clement Attlee to the Potsdam Conference. In September, he attended the Council of Foreign Ministers convened in London.

A collection of Mr. Bevin's speeches and radio addresses has been published under the title *The Job To Be Done* (1942).

BHUTAN, bo͞o-tän'. A semiautonomous state on the northeastern frontier of India. The state occupies a unique position, in some respects being regarded as within the Indian Empire (for instance, the ruler attends durbars in India) and in others being treated as a distinct entity (as, for instance, for purposes of the census). While there is complete internal autonomy, Bhutan's external relations are controlled by the British government in consideration of payment to the ruler of an annual subsidy of (since 1942) 200,000 rupees. The area of the country is about 18,000 square miles, and the population numbers some 300,000. The people practice a debased form of Buddhism. The hereditary ruler since 1926 has been Maharaja Sir Jig-me Wang-chuk. The annual revenue of the state amounts to about £30,000 a year. Punaka is the winter capital, and Tashi-Chodzong the summer capital. The castles at these and certain other places have guards which constitute the country's sole armed forces. Indian corn, rice, and millet are cultivated, and lac, wax, and musk are gathered. Muzzle-loading guns and steel swords are manufactured, and there is some textile weaving. Bhutan's trade with British India amounts to about £65,000 a year.

BIBLE SOCIETY, American. See AMERICAN BIBLE SOCIETY.

BIDAULT, Georges, French government official: b. Moulins, near Vichy, France, 1899. M. Bidault, France's foreign minister and head of her delegation to the San Francisco Conference (April 25-June 26, 1945) is a new figure in French politics. An educator and journalist by profession, he was mobilized in 1939; saw front line action against the Nazis; was taken prisoner and later released. He returned to Lyons (then unoccupied), and took a teaching job to provide a blind for his underground activities. For a time he was liaison agent between the underground and the Free French, and in 1943, became president of the National Council of Resistance, when his predecessor was taken by the Germans. He lived in hiding for six months before the liberation of Paris, after the Nazis identified him as the resistance leader. It was

he who rallied the guerrilla forces of Paris in August 1944, and he to whom the German commander surrendered.

Georges Bidault is the son of an insurance company executive. His education included six years' study at a Jesuit school in Italy. On his return to France, he took an active part in the Catholic Youth movement. He was later graduated with honors from the Sorbonne; taught history at Valenciennes; and at the age of 30, took a teaching post at one of Paris' leading high schools. He was also an editor of the prewar Paris daily, *L'Aube*, official organ of the Popular Democratic Party, a Leftist Catholic group.

Since his appointment as foreign affairs minister in September 1944, he has distinguished himself at several United Nations conferences. He helped de Gaulle negotiate the Franco-Soviet pact of alliance and mutual assistance, signed in December 1944. In late August 1945, Bidault accompanied General de Gaulle to the United States. In September, he attended the meeting in London of the Council of Foreign Ministers.

BIOCHEMISTRY. The end of the war has made it possible for biochemists to return to their peacetime research. Plans are well under way for publication in the scientific journals of many of the contributions made during the war. Technical and scientific missions to former enemy countries are also engaged in making available the results of scientific research in Europe and Japan. The tremendous contributions of science to the winning of the war and to the welfare of society has aroused great enthusiasm and interest in science and a growing awareness of the need for large scale appropriations for research by the federal government.

Among the noteworthy developments in the field of plant biochemistry has been the use of plant growth substances as selective weed killers. These compounds, which in small amount stimulate growth of plants, have been found to depress growth when applied in higher concentrations. Many types of weeds appear to be more susceptible to these substances than are certain grains. Application of 25 pounds α-naphthylacetic acid per acre to a weedy field just after sowing with oats killed the weeds. Eighty-four per cent of the weeds failed to germinate and those which did soon died. The oats were only temporarily retarded and recovered fully. Another substance, sodium-4-chloro-2-methyl phenoxyacetate, at a concentration of one pound per acre resulted in complete eradication of a weed (yellow charlock) without affecting the oats. Extension of such studies should be of great value to agriculture. Chemical sprays using pentachlorophenol and dinitroso secondary butylphenol have also been employed to prevent pollen production and release in ragweed. These materials, when sprayed at a level of 100 gallons per acre, destroy ragweed and prevent pollen release. They are not ideal since they are toxic to other vegetation, but further studies may provide a specific method of preventing release of pollen from ragweed and prove of great value in the control of hay fever and other pollen sensitivities.

Intermediary Metabolism.—Use of radioactive and heavy isotopes as tracer substances has disclosed additional information about the chemical pathways along which the body channelizes its vital processes. By using radioactive strontium and calcium, the way in which vitamin D promotes mineralization of rachitic bone has been investigated. Vitamin D has been found to act partly by increasing the absorption of calcium from the intestinal tract and partly by increasing the retention of calcium and strontium in the rachitic bone. After feeding cholesterol, containing deuterium (H^2) as a label, to a woman in the eighth month of pregnancy, pregnanediol-3α, 20α was isolated from the urine and found to contain deuterium. Since pregnanediol is a metabolic product of progesterone, one of the female sex hormones, it would appear that the hormone progesterone can be synthesized from cholesterol. The occurrence of small amounts of pregnanediol-3α, 20α in the urine of normal males or in females whose ovaries have been removed has been explained by the finding that the adrenal cortical hormone, desoxycorticosterone, is also converted to pregnanediol. About half of the carbon atoms in cholesterol have been found in part to be derived from acetic acid. Formation of ketone bodies, such as acetoacetic acid, from acetic acid may occur in the kidney and in any tissue which metabolizes acetates and may no longer be considered to be exclusively a function of the liver. After feeding the amino acid glycine containing N^{15} to a man, samples of hemin, the iron-prophyrin compound in hemoglobin, were found to contain the N^{15}, indicating that glycine had been used in the synthesis of the prophyrin portion of the hemin. The average lifetime of a prophyrin molecule was found to be about 100 days, considerably longer than would have been expected from other studies on the lifetime of the red blood cell. The sulphur of methionine, an amino acid, has been shown to be used *in vivo* to form another amino acid, cystine; the carbon chain of methionine was not utilized.

Enzymes.—Phosphorylase, the enzyme which converts glycogen to glucose–1–phosphate has been shown to consist of two enzymes, phosphorylase *a* and *b*. Phosphorylase *a* can be converted to phosphorylase *b* by trypsin or by an enzyme present in muscle. The conversion of phosphorylase *a* to *b* involves splitting of a prosthetic group which contains organic phosphate. Phosphorylase *b* requires adenylic acid for activity whereas phosphorylase *a* shows 65 per cent of its maximal activity in the absence of adenylic acid. The transformation of *a* to *b* is of importance in muscular contraction since it results in a slower rate of glycogen breakdown. Resting muscle contains phosphorylase *a* while stimulated muscle contains mostly phosphorylase *b*. No phosphorylase *a* could be obtained from fatigued muscle.

Ribose–1–phosphate, a nucleoside, has been synthesized *in vitro* with an enzyme from rat liver. The reaction

inosine (hypoxanthine riboside) + excess phosphate $\rightleftarrows$ hypoxanthine + ribose–1–phosphate

is reversible but can be made to go to completion by addition of another enzyme, xanthine oxidase, which converts the hypoxanthine formed to uric acid.

Acetyl phosphate, an important intermediary in the transfer of energy in the cell has also been synthesized enzymatically from pyruvic acid and phosphate using an enzyme from bacteria.

Lysozyme, the enzyme in egg white which dissolves certain bacteria, has been obtained in crystalline form.

Proteins.—A complete quantitative analysis of a protein, lactoglobulin, has been made and it has become possible for the first time to account for every one of its several hundred constituent amino acid residues. The molecular weight

calculated from amino acid analysis was in good agreement with that obtained by ultracentrifugal and diffusion measurements.

The protein hormone of the anterior pituitary gland which is associated with growth has been isolated in purified form. It causes resumption of growth and an increase in the cartilage at the epiphyses of the bones of rats whose pituitaries have been excised. A new class of proteins has been found in fetal serum. These proteins, called fetuins are also present in the newborn but are absent in the adult. They have a molecular weight of about 50,000.

Vitamins.—The antagonistic effects of substances closely related in chemical structure to vitamins and essential metabolities have been extensively studied. Replacement of the sulphur in biotin by an oxygen atom did not impair its growth stimulating effect on three species of yeast. However, thienylalanine, a compound in which the phenyl group of phenylalanine has been replaced by the thiophene ring caused marked inhibition of growth when added to a yeast medium. This inhibition could be prevented by increasing the concentration of phenylalanine. Administration of ∝-tocopherol quinone, a compound structurally related to vitamin K, caused hemorrhage of the reproductive system of mice and resorbtive termination of pregnancy which could be counteracted by vitamin K.

Chemotherapy.—Strains of staphylococci which are resistant to the action of penicillin have been developed. These strains are thought to arise by mutation when organisms are grown in media containing penicillin which acts selectively to eliminate non-resistant organisms. Resistance can be increased by exposure to higher concentrations of penicillin. These studies suggest the possibility that similar mutations may take place in penicillin-treated individuals and that drug-fast strains may become of increasing clinical importance. Penicillin has also been found to produce an increased coagulation time with a non-retractile type of blood clot. Another antibiotic, streptomycin, offers considerable promise in the treatment of typhoid fever and several diseases caused by Gram-negative organisms against which penicillin is ineffective. Two crystalline derivatives of streptomycin have been reported which should be of aid in purification and in elucidation of its structure.

Blood Group Substances.—The Rh factor, that blood group antigen responsible for many cases of fetal death and for occasional severe reactions following multiple transfusions of blood compatible with respect to the A and B factors, has been shown to be present in amniotic fluid. The Rh substance in the fluid appears to be of fetal rather than of maternal origin. Its availability in soluble form should materially facilitate its purification and a study of its properties.

ELVIN A. KABAT,
College of Physicians and Surgeons, Columbia University and the Neurological Institute, New York.

BIOPHYSICS. See under PHYSICS.

BIROBIDZHAN (BIROBIJAN), bē'rō-bĭ-jän', Jewish Autonomous Region in the Soviet Far East. It is situated in a great bend of the Amur River opposite the northeast corner of Manchuria. Colonization of the region was begun in 1928 by volunteer Jewish settlers, autonomous status being extended in 1934. It has an area of 14,200 square miles, and by 1939 had a population of 108,400, chiefly Jews, but including also Russians, Belorussians, Ukrainians, and Koreans. The capital, Birobidzhan, which is on the Moscow-Vladivostok railway (south branch) was in 1928 a village of 600 inhabitants. By 1941 its population was reported as 38,000, and it had seven large factories, an electric power station and a mechanized bakery. It also had a hospital, a hotel, technical schools, a school of ballet and music, a large library, Jewish newspapers, and a State Jewish Theater.

Farming is a leading occupation of the region, vegetables, fruit, and honey being specialties. Collective farming is rapidly developing, especially along the Amur, while large quantities of timber are cut in the extensive taiga (forest region). Mineral resources are also important. Iron ore deposits estimated at 600,000,000 tons are being developed. Gold mining is in progress at Soutar. Large lime works are in operation at Londoko, and marble is being quarried at Birokan. A health resort has been established at Kuldur. By 1944, 26 artels (handicraft associations) of producers' co-operatives and 9 domestic-industry enterprises were producing consumers' goods, stress being laid during the war upon production of leather, buttons, and laundry soap, and upon the manufacture and repair of household utensils and agricultural hand tools.

BLOOD PLASMA. See MEDICINE.

BLOOD VESSEL SURGERY. See SURGERY, PROGRESS IN.

BLUM, Leon, French political leader: b. Paris, France, April 9, 1872. In early May 1945, M. Blum, twice premier of France, was freed from German authorities by Allied forces at Dobbiaca, Italy. With Kurt Schuschnigg, former Austrian chancellor, and Rev. Martin Niemoeller, German anti-Nazi pastor, he had been moved from Buchenwald, where he had spent two years. M. Blum was arrested in 1940, after the collapse of France, and in 1943 was transferred to a German prison. A brilliant literary and dramatic critic, and leader of the Socialist Party, later of the Popular Front, he entered French national politics in 1919 as a member of the Chamber of Deputies. He was premier of France from June 1936–June 1937, and as such, carried through radical reforms affecting banking, labor and agriculture. He was again premier, March–April 1938. He was educated at the École Normale Supérieure where he took his degree in philosophy. He then studied law at the Paris Law School and became an attorney. For 26 years, he was a member of the highest French tribunal, *Conseil d'Etat,* from which he retired in 1919, with the title *Maître des Refuètes,* to enter active politics. Since his return to France, M. Blum has resumed his duties as leader of the Socialist Party and political editor of the party organ, *Le Populaire.*

B'NAI B'RITH (SONS OF THE COVENANT). Oldest Jewish service organization, founded in 1843 to further the unity of the Jewish people and to serve humanitarian and community causes through a program encompassing youth welfare, education, community and social service, inter-faith understanding, defense of Jewish rights, philanthropy, Americanism. Membership: 240,000. President: Henry Monsky; secretary: Maurice Bisgyer, headquarters: 1003 K Street N. W., Washington 1, D.C.

From Pearl Harbor to V-J Day, B'nai B'rith compiled a war service record expressed in the

following figures: 527 members killed or missing in action and 502 decorated; 1,500 recreational facilities equipped for the army and navy; 650 fighting ships equipped with recreational material; $900,000 contributed to the Red Cross and other United Nations relief agencies; $700,000,000 worth of war bonds sold; 2,500,000 servicemen and women entertained.

B'nai B'rith's president was an official consultant to the American delegation to the United Nations Conference in San Francisco. In memory of Franklin D. Roosevelt, the B'nai B'rith Women created a Four Freedoms Library at the University of Illinois.

BERNARD POSTAL,
National Director of Information, B'nai B'rith.

BOCK, Fedor von, German Army officer: b. Dec. 3, 1880; his bullet-riddled body was found north of Hamburg, Germany, by troops of the British Second Army, May 6, 1945. As a field marshal, von Bock commanded the Central Army Group in the Nazi invasion of Russia in June 1941, and was relieved of his Russian command after German failure to take either Moscow or Stalingrad. He was known as *Der Sterber* (the Dier) because of his reckless expenditure of men and matériel in efforts to attain his military objectives. In 1939, he took part in the Polish campaign, and in 1940, directed operations of the lower Somme army against France. Von Bock was a product of the Potsdam Military School; served in the First World War and emerged a major. From 1920–38, he commanded the German Third Army Group.

BOLIVIA, bō-lĭv'ĭ-ȧ, *Sp.* bō-lēv'ē-ä. Third largest country of South America, with an estimated area of 506,792 square miles and an estimated population of 3,533,000. Indians number approximately one third of the population. Sucre is the capital, but La Paz (pop. 301,000), situated at an elevation of 12,000 feet above sea level and the highest important city in the world, is the actual seat of government. The language is Spanish; Indians and mestizos speak also Aymará, and Quechua, native languages.

An organic law of Oct. 30, 1938, superseded the constitution of 1880, and provided for a democratic, representative, unitary republic, with executive power vested jointly in the president and a Cabinet appointed by him. The president, elected for four years by direct suffrage, was declared ineligible for re-election until four years after the end of his term. Legislative power was vested in a Congress of two chambers—a senate of 27 members (three from each department) elected by popular suffrage for six years, and a Chamber of Deputies of 70 members elected for four years. Justice is administered by a Supreme Court, district courts, and minor tribunals, the judicial arm being legally independent of both the president and Congress. Gen. Enrique Peñaranda was inaugurated president on April 15, 1940. He was ousted by a coup d'état Dec. 20, 1943, led by Victor Paz Estenssoro and a group of junior army officers who put Maj. Gualberto Villarroel, a hero of the Chaco War, in as president.

Religion.—Roman Catholicism is the state religion, although other forms of worship are permitted. The Roman Church has two archbishops and six bishops. Marriages must be celebrated by civil authorities; divorce (among other than those of the Roman Catholic faith) has been permitted since 1932.

Education.—Under a supreme decree issued in May 1939, the educational system of Bolivia was unified. Thereafter, education became a government function, with full control from kindergarten through the universities. A National Educational Council was formed to direct educational activities and to bring about uniformity. Provision is made for the study of civics in all schools. Classes, except those for teaching a foreign language, must be held in Spanish. Examinations are controlled by the National Educational Council and are the same in all schools.

The latest statistics showed more than 2,000 primary schools with an enrolment of 155,627 pupils; and 47 secondary schools with an enrolment of 8,396 (1941). There are six universities, located in the following cities: Sucre, La Paz, Cochabamba, Oruro, Potosí and Santa Cruz. Under the direction of the Supreme University Council are also an Institute of Commerce, a School of Mines, and a School of Native Languages. A new feature of the school system is the emphasis on Indian education. There are 16 regional schools with an enrolment of 10,000 children, drawn from a population of 1,500,000 Indians.

In La Paz the principal newspapers are *Ultima Hora, La Razon, El Diario, La Talle* and *La Noche.* Other leading papers are published at Cochabamba, Sucre, Potosí and Oruro.

Army.—Bolivia is divided for defense purposes into 8 military regions and 5 frontier military governorships, all under the direct control of the chief of staff of the army. The law of 1943 provides for a permanent force of 15,000 men, excluding the police force and the frontier carabineers. Military service is compulsory for all males from the 19th to the 50th year. Those from 19 to 25 serve not more than two years with the standing army; those from 25 to 30, "the ordinary reserve," return sometime for three months' service. After this the men pass to the "extraordinary reserve" for 10 years and complete their service by 10 years' enrolment in the Territorial Guard. The army has the following institutions: Military College, School of Arms, Superior School of War, Military Geographical Institute and Noncommissioned Officers School. In normal times the army consists of 12 infantry regiments, 6 cavalry regiments, 3 regiments of mountain artillery, a field artillery regiment, 6 battalions of engineers, and 1 aviation corps. There are also small infantry bodies (*columnas*) of 100 and 200 men stationed in the larger towns of the departments, and capable of being expanded into battalions in times of emergency. In November 1941 an American Air Mission took over from the Italians the training of the Bolivian air force. At present the army has American army and aviation missions.

Transportation and Communication.—There are 1,867 miles of railroads in operation in Bolivia, of which 506 miles are owned by the government; the principal line is the Antofâgasta and Bolivian Railway, total length in Bolivia 744 miles. Main highways total 2,925 miles, exclusive of 3,275 miles of secondary roads and 1,000 miles under construction. The airlines cover 3,495 route miles. Pan American-Grace Airways, Inc., links Bolivia with the United States and with other South American countries, and Lloyd Aéreo Boliviano flies 4,431 scheduled miles weekly. Air services underwent marked expansion in 1944 and 1945. Bolivia has 548 post offices, and 683 telegraph, telephone, and wireless offices. International radio service is furnished by the Cia. Radio Internacional Boliviana, while the government main-

tains domestic radio service for political and private business. A new 8-ton aerial trolley spans the Rio Espíritu Santo on the road between Cochabamba and Todos Santos, facilitating transport between La Paz and the Amazon Basin rubber areas. Direct communication between Arica, Chile, on the Pacific Ocean and Brazilian river ports was made possible with the completion early in 1944 of a section of the Santa Cruz-Corumbá Railway line. Work on the Yacuiba-Santa Cruz Railway was initiated on May 23, 1944. This line will connect Positos, Argentina, a town just south of the Argentine-Bolivian border with Santa Cruz, Bolivia.

Agriculture and Industry.—Potatoes, cacao, coffee, barley, and highland rice are the principal products, but agriculture generally is undeveloped, only about 500,000 acres or approximately one fifth of 1 per cent of the total area being cultivated. Bark and hides are extensively produced, and the country ranks as the second rubber-exporting country of South America (next to Brazil). The last livestock census reported 1,854,915 cattle, 5,552,074 sheep, 747,581 goats, 1,882,000 llamas and alpacas, 335,580 swine, 375,738 horses and mules.

New cement factories in 1944 greatly increased the annual output of 23,000 tons, exceeding domestic consumption.

Tobacco manufactures in La Paz are valued at more than $1,000,000 annually. There are also cotton mills, a glass factory and new paint and paper products factories in La Paz.

Bolivia's national fish hatchery at Pongo was completed in 1944. By stocking Bolivia's rivers and lakes from the new hatchery it is hoped that the country will become self-sufficient in this important food item. Production of crude petroleum during the first quarter of 1945 totaled 12,032,896 liters. Of this amount 6,516,327 liters were processed at the Camiri and Sanandita refineries into gasoline, fuel oil, Diesel oil and kerosene.

The entire annual commercial output of cotton is estimated at only 120,000 pounds, while the domestic cotton mills require about 4,000,000 pounds annually. During 1944, 2,257,657 kilograms of cotton were imported.

More than half of the 1945 municipal budget of 94,000,000 bolivianos for La Paz is earmarked for public works.

Mining.—Tin forms about 80 per cent of the total export values of the republic. Tin production in 1943 was 40,312 long tons, a 5 per cent increase over the amount produced in 1942. About 50 per cent of the tin formerly went to Great Britain, and the rest to the new tin smelter at Texas City, Texas. Recently, larger quantities have been going to the United States. In 1945 a contract was signed between the United States Commercial Company, representing the United States government, and the Bolivian government, together with leading tin producers (except the Patiño interests), covering deliveries from July 1, 1945, to June 30, 1946. It provided for successive reductions in prices from that of the preceding contract. The price for the quarter ending Sept. 30, 1945, remained the same, and was based on 63½ cents per pound for refined tin in the United States. But for the three succeeding quarters it was reduced to 62 cents, 60½ cents and 58¾ cents, respectively. Half of the Patiño tin production for 1945 was purchased by the United States. Discussions are being held regarding a similar purchase in 1946.

Moderate increases have occurred in the output of tungsten (estimated at 3,601 metric tons for 1943), antimony, lead and copper. In September 1945 uranium deposits were reported discovered at Colquechaca.

Foreign Trade.—In May 1945 the exports of tin, most important in value of export items, amounted to 1,983,132 kilograms valued at $2,830,885; approximately 59 per cent went to the United States. In the same month 1,226,435 kgm. of zinc and 444,981 kgm. of copper, valued respectively at $168,915 and $115,267 were exported, all to the United States. Nearly all the silver export of May, amounting to 13,597 kgm. valued at $191,725, also went to the United States. Rubber exports to the United States during the first half of 1945 totaled 1,968,434 kgm., including 1,645,655 kgm. of fine, and 322,779 kgm. of ordinary rubber. Of the shipments made in June, 92.13 per cent of all fine rubber and 99.41 per cent of all ordinary rubber were routed to the United States. During the first six months of 1945, 160,731 kilograms of cattle hides were exported to the United States; during 1944 the monthly exports of hides to the United States averaged 16,164 kgm.

Finances.—The budget for 1945 balanced with revenues of 252,907,800 bolivianos (1 boliviano = $.0238) and expenditures of an equal amount. The chief items of expenditure were for education, public works, labor and social works, and agriculture. The most recent official figures for the public debt are those of December 1942 when they amounted to $60,733,010.81 with interest of $52,407,600, making a total, including principal and interest, of $113,140,610.81. The Ministry of Finance is studying ways and means of redeeming these loans in the near future. For the year 1944 there was a national budget surplus of 71,526,362 bolivianos ($1,703,009 in United States currency).

Principal Events.—The revolution of Dec. 20, 1943 originated, according to its protagonists, in the reaction of the Bolivian people to the conservative and arbitrary policy of the government of Gen. Enrique Peñaranda. This government, they assert, pursued a reactionary policy functioning in the interests of a minority group consisting of the mining oligarchy, and hence was absolutely opposed to the rights and essential needs of the majority of the people. Its policy, aggravated by administrative corruption, led to a crisis when it resorted to armed repression to silence the demands of the mine workers of the Patiño Mining Company who demanded better living conditions. The government's answer to the demands was the massacre of Catavi in which a hundred men, women and children were killed.

The Catavi tragedy, which occurred in December 1942, not only infuriated the Bolivian people, but had repercussions in other American republics. Upon the subsequent visit of President Peñaranda to the United States, Ernesto Galarza, chief of the Labor Office of the Pan American Union, addressed an open letter to Acting Secretary of State Sumner Welles denouncing the crimes committed against the Bolivian workers. Synchronously in the Bolivian parliament the MNR *(Movimiento Nationalista Revolutionario)*, a left party which had, however, no international influences or affiliations, began an energetic campaign against the government. This resulted in the rise of a united revolutionary sentiment among the exploited working classes. The younger army officers joined the movement.

Such is the background of the Revolution of December 20 which, according to its sponsors, at no time had any foreign support or the slightest contact with nazism or fascism. The errone-

ous belief in a connection of the MNR with these European ideologies, continuing for a long time after the revolution, was based, said the revolutionaries, on the fact that the Peñaranda government, democratic in appearance but dictatorial in fact, branded all its political enemies as Nazis. This together with the campaign of slander unleashed by the expelled members of the Peñaranda government, confused continental opinion to the point of denying recognition to the new revolutionary government suspected of having the backing of pro-Nazi elements. Proof of the loyalty of the new government to the ideals and objectives of the United Nations effectually dissipated these suspicions.

On May 11, 1944, Avra M. Warren, United States Ambassador to Panama, and Gen. Ralph Wooten, commander of the Sixth United States Air Force, arrived at La Paz to study the political situation. Their report favoring United States recognition was the basis for consultation with other American republics. Accordingly, on June 23 the Bolivian government, which had been previously recognized by Argentina, resumed its relations with its sister Latin American republics and Great Britain.

The elections of July 2 gave majority control in Congress to the MNR, while the Democratic Union (*Unión Democrática*), which included the four "traditional" parties and the leftist PIR (*Partido de la Izquierda Revolucionaria*), obtained a total of only 21 seats. Thus the popular vote confirmed public support of the forces that had achieved the revolution.

In August 1944, Lieut. Col. Gualberto Villarroel, president of the government council, was elected constitutional president of the republic by the National Assembly for the term of 1944 to 1948.

The new government has instituted a series of radical reforms with these objectives: (1) to integrate the Indian masses into the national social and economic life; (2) to establish subsistence wages and a higher standard of living for the rural and laboring classes; (3) enactment of laws to benefit the middle classes; (4) control of the national wealth, hitherto monopolized by three great mining corporations; (5) a program of diversification of production, in order to create new sources of wealth and change the national economy, so that tin will no longer be the primary source of fiscal income; (6) reform the national constitution to make it responsive to the needs of a developing nation.

BONG, Richard Ira, United States Army Air Force officer: b. near Poplar, Wis., 1921?; d. in a crash while testing a jet-propelled fighter plane, Burbank, Calif., Aug. 6, 1945. America's greatest air ace, Major Bong had shot down 40 Japanese planes and flown over 500 combat missions against the enemy. He had received 26 decorations, including the nation's highest award, the Congressional Medal of Honor.

A student at the Wisconsin State Teachers College in Superior, Wis., Major Bong had completed a Civil Aeronautics Administration training course when he enlisted in the Army Air Forces in September 1941. He won his wings at Lipe Field, Phoenix, Ariz., in January 1942, and in September of that year was sent to the southwest Pacific with the 5th Fighter Command. During two years of combat in the Pacific, he fought through the battles of the Bismarck Sea, Oro Bay, Buna, Wewak, Lae, Rabaul, Huon Gulf, and Leyte. His first victory was on Dec. 27, 1942, when he shot down an enemy Zero fighter and a bomber. He became the leading ace of the United States in April 1944, after shooting down his 27th Japanese plane over Hollandia, New Guinea. This record surpassed the score of 26 achieved in the First World War by Capt. Eddie Rickenbacker. Gen. Douglas MacArthur personally presented to him the Congressional Medal of Honor on Dec. 12, 1944, and five days later he gained his 40th air victory over Mindoro in the Philippines. Major Bong returned from the Pacific in January 1945 and was assigned to test flying at the Lockheed aircraft plant in Burbank. Among his decorations were the Distinguished Flying Cross, the Air Medal with 17 Oak Clusters, the Distinguished Service Cross, and the Silver Star Medal.

BONNET, Henri, French diplomat: b. Châteauponsac, Department of Haute-Vienne, France, May 26, 1888. M. Bonnet was appointed ambassador to the United States in late November 1944 by Gen. Charles de Gaulle. On New Year's Day 1945, he signed in Washington the joint statement by which France became a member of the United Nations. An honor graduate of l'École Normale Supérieure, M. Bonnet specialized in the study of history and foreign relations after the First World War. In 1919, he edited the Paris *L'Ére Nouvelle*. In 1920, his knowledge of foreign affairs secured him a post in the newly created League of Nations, and between 1920 and 1931, he attended League conferences in Europe, Asia, and America. In the latter year, he became director of the International Institute of Intellectual Co-operation, and held that position until 1940. After the fall of France, he and his wife, the former Helle Aghnaides, went to the United States, following a brief sojourn in London where Bonnet was active in the Free French movement. Thereafter, he became a member of the faculty of the Free School for Higher Studies; served on the Council of the Free World Association; and was special adviser to the World Citizen's Association (Chicago), under whose sponsorship he wrote or edited a number of books. Included among them are the following: *The World's Destiny and the United States; The United Nations, What They Are, What They May Become* (1942); *United Nations On the Way: Principles and Policies* (1942); and *Outlines of the Future* (1943), in which he supports General de Gaulle's opposition to European spheres of influence. In June 1943, M. Bonnet left the United States for Algiers to assume his duties as information chief for the French Committee of National Liberation. He resigned this position shortly after the establishment in Paris of the Provisional Government of the French Republic, Aug. 30, 1944, contending that "most key government posts should be held by active members of the Resistance."

BORNEO, East Indies. The third largest island in the world, exceeded in size only by Greenland and New Guinea. The area is 296,726 square miles, and the population is estimated to be 3,139,585. Nearly three quarters of the island is, politically, part of the Netherlands Indies (q.v.), the remainder comprising three states, on the north and west of the island, under British protection; Labuan, a small island off the northwest coast, is, politically, part of the Straits Settlements (see BRITISH MALAYA). The governor of the Straits Settlements is also high commissioner for Brunei, and British agent for the states of North Borneo and Sarawak. The

areas and estimated populations of the components of the island of Borneo are as follows:

Territory	Square miles	Population	Capital
British North Borneo	29,500	304,000	Sandakan (13,826)
Brunei	2,226	39,000	Brunei (12,000)
Netherlands Borneo	215,000	2,306,000	Bandjermasin (64,223)
Sarawak	50,000	490,585	Kuching (30,000)
Total	296,726	3,139,585	

British North Borneo.—Officially styled The State of North Borneo, it is under the jurisdiction of the British North Borneo (Chartered) Company, the only body still holding a charter from the British crown to carry on the government of a country under British protection. Administration is conducted by a governor (appointed with approval of the British government), who is assisted by a nominated Legislative Council of 14 (9 official and 5 unofficial members) and some 60 white officials. Between 1900 and 1940 the annual revenue of the government increased from £62,000 to £503,436; expenditure in 1940 was £249,138. Most of the people are pagan; by 1939 there were 49 state-aided mission schools with an average daily attendance of 3,270. There were also 79 unaided Chinese vernacular schools with about 4,500 pupils; and the government maintained 21 Malay vernacular schools. The Malay language is the lingua franca of the country. Chinese form the commercial community and are also market gardeners. Rice and sago are staples of native diet, and tapioca, peanuts, and sweet potatoes are cultivated. Rubber plantations were, prior to the war, the principal economic asset of the country. In 1940, 176,000 tons of rubber were produced on 126,400 acres, half of it on small holdings. Coconuts occupy 53,000 acres, and manila hemp 5,296; tobacco-growing has declined in importance. Petroleum deposits have been located at Lahad Datu and Tawau; they await development, as do such known mineral resources as gold, manganese, platinum, and tin. Exports in 1940 totaled S$20,270,502 (the Straits Settlements dollar in 1940 averaging $0.46979 in United States currency). Rubber exports constituted 71.2 per cent of the total value; other exports were timber, cutch (bark of the mangrove tree, used in dyeing), copra and coconuts, dried and salt fish, tapioca, manila hemp, rosin, and sago. Imports in 1940 totaled S$9,978,419, represented mainly by foodstuffs. From Sandakan, principal east coast seaport, there were scheduled steamship services to Hong Kong; and from Jesselton, port on the west coast, weekly steamers to Labuan, Singapore, and Sarawak. A government railroad of 127 miles ran southward from Jesselton to Beaufort, and thence eastward to Melalap; a branch line connected Beaufort with Weston, on Brunei Bay. Outside municipal limits there were 236 miles of highways, and 600 miles of bridle paths.

Brunei.—A sultanate under British protection. While supreme authority is vested in the sultan (Ahmed Tajudin Akhazul Khairi Waddin succeeded in 1925) and a council of 9 members, administration is in the hands of a British resident (a member of the council) and white officials, all of them members of the civil service of British Malaya. Revenue in 1940 amounted to £181,574, and expenditure was £170,587. The government provides free vernacular education in Malay (23 schools in 1940, with 1,708 pupils); there are also 5 Chinese vernacular schools (472 pupils) and 4 private English schools (160 pupils). The natives cultivate rice and sago, though fishing is their main occupation. Some obtain jelutong rubber in the forests (otherwise unexploited), and others are employed on plantations of hevea rubber, exports of which amount to one fifth of the total (£1,122,680 in 1940). Brunei is one of the largest producers of petroleum in the British Bornean territories, representing some 70 per cent of the sultanate's total exports (5,732,559 tons of crude petroleum in 1940). The British Malayan Petroleum Company, which operates at Seria, on the coast, sends its oil to be refined at Lutong, on the Miri River, in the neighboring Sarawak field. Total imports were valued at £453,502. Brunei has 87 miles of highways, rivers and the sea affording the principal means of communication.

Netherlands Borneo.—See article NETHERLANDS INDIES.

Sarawak.—Administered under British protection, by a white rajah (Sir Charles Vyner Brooke succeeded in 1917), assisted by a Supreme Council of 7 (5 Malayan chiefs and 2 white officials). Government revenue in 1940 amounted to S$7,463,315, and expenditure was S$5,018,007; there was no public debt, and assets exceeded liabilities by S$10,390,476. The majority of the indigenous inhabitants are Dyaks, while there are considerable numbers of Malays, Chinese, and other migrants. Vernacular schools are conducted by missions with the aid of government grants. About 300,000 acres of land were planted in rubber; except for some 10,000 acres under white management, all of it was in small native holdings of about three acres each. Chinese landowners cultivate pepper on a considerable scale, and the sago palm yielded a flour which was exported to Malaya. Gold and coal have long been mined, and petroleum is obtained from fields at Miri, at the northern end of the country, by Sarawak Oilfields, Limited, and refined at Lutong; production in 1940 amounted to 1,314,000 barrels. Exports of rubber that same year totaled 35,000 tons. The total value of all exports in 1940 was S$45,770,407; and imports, principally rice and other foodstuffs, amounted to S$32,645,192. Kuching, the capital, and Miri have direct steamship communication with Singapore. Internal communication is mainly along the rivers; there are about 500 miles of roads, about one fourth of the total length being usable by automobiles throughout the year.

Principal Events in 1945.—The British-protected territories in the north and west of Borneo were occupied by the Japanese in December 1941, and it was not until 1945 that operations for their recovery could be undertaken. On June 8, after initial sea and air bombardment, landings were effected on the island of Labuan by the Australian 9th Division. Within a week all Japanese resistance had been overcome on Labuan and also in Brunei, and the Australians continued southward on the mainland to capture the Miri oilfields of Sarawak by June 21. Also moving northward from the Brunei Bay area into British North Borneo, the Australians captured Beaufort on June 26 and went on to seize Kimanis, 21 miles northeast of that town, on July 13. Meanwhile, and continuing until the close of hostilities, air raids were made on Japanese bases at Jesselton, to the north, and at Kuching, lying far to the southward. All Japanese forces in Borneo were included in the capitulation to Admiral Lord Louis Mountbatten at Singapore on Sept. 12, 1945, signed on behalf of Field Marshal

Count Juichi Terauchi, commander in chief of all the Japanese Southern Armies, by Lieut. Gen. Seishiro Itagaki. A local surrender of enemy troops in North Borneo and Sarawak was completed on September 14, when Maj. Gen. Katsuo Otsuka, commanding in the Sandakan area, signed the necessary documents before Australian representatives. An appalling story of cruelty then came to light, the Australian government reporting that only six men out of 2,550 British and Australian prisoners of war survived captivity at Sandakan; practically all those who survived disease and death marches through the rugged Borneo mountains in January 1945 were killed in cold blood by their captors.

WHEELER B. PRESTON,
Author and Publicist.

BORNHOLM, Denmark. An island in the Baltic Sea, 22 miles southeast of Sweden. It is 24 miles long and 19 miles in breadth; the area is 227 square miles, and the population amounts to 46,542. The capital and principal seaport is Rönne, on the west coast; it is connected by rail (22 miles) with Neksö, a southeastern port. Flax, hemp, and oats are cultivated, and other industries include fishing and the manufacture of pottery.

On May 9, 1945, the day following unconditional surrender of the German armies, Russian troops were landed on Bornholm with the prior knowledge and approval of Gen. Dwight D. Eisenhower. Their commander issued a statement to the effect that the island was being occupied by Russian forces provisionally until questions of Germany relating to the war were solved. Nevertheless, Soviet troops had not been withdrawn by the year's end. It was reported that Bornholm had been used by the Germans for their researches into atomic energy.

BOSE, Subhas Chandra, Hindu politician, author, and journalist: b. Cuttack, Bengal, India, 1897; d. after an airplane crash near Taihoku, Formosa, Aug. 19, 1945, according to a Tokyo radio report. The only prominent Indian nationalist leader to be won over by the Axis, Bose headed the Japanese-sponsored provisional government of Free India. A high-caste Hindu, though not a Brahman, Bose attended the Presidency College of Calcutta and then went to England to study at Scottish Church College and Fitzwilliam Hall, Cambridge. He entered the Indian Civil Service in 1920, but the next year he came under the influence of Gandhi's civil disobedience campaign, resigned his position, and joined the Swaraj Party. From then on his career alternated between public work as a Congressman and periods spent in jail. In 1927 he was elected president of the Bengal National Congress and general secretary to the All-India National Congress. Together with Nehru he founded the Indian Independence League in 1928. From 1929 to 1931 he was president of the All-India Trade Union Congress, and during 1930 was elected mayor of Calcutta while serving a jail term in Burma. Representing an extreme Left-wing position, Bose was violently anti-British and demanded complete independence for India. In contrast with Gandhi, he became a defender of the use of force as the only way to win this independence. While living in Vienna in 1932, he began to advocate *Samyavada* (equality) — a single-party state with authoritarian discipline. At this time he was on friendly terms with Mussolini and prominent Nazi officials. Bose was elected president of the Indian National Congress in February 1938 and he and other Left-wing members denounced what they considered Gandhi's conservative and compromising policies. Despite Gandhi's opposition, he was re-elected by a narrow margin the next year, but resigned that spring after unsuccessful negotiations with Gandhi over matters concerning the party's working committee. On July 2, 1940, he was arrested on the charge of plotting to raze the famous Black Hole Monument in Calcutta. Released in December after a hunger strike, he disappeared in January 1941, and late that year turned up in Germany, where he is said to have conferred with Hitler. By June 1943 he was reported in Tokyo and from there went to Singapore to proclaim the establishment of his countergovernment in October 1943 and to announce the formation of an army of liberation to be recruited among Indians in Japanese-dominated territory. In January 1944, he moved his headquarters to Burma, but after the Japanese rout in that area, he transferred to Bangkok, Siam. At the time of his death, Bose was still held in esteem by many young Indian nationalists. His autobiography, *The Indian Struggle, 1920–34,* was published in England in 1935, but banned in India.

BOSNIA-HERZEGOVINA. Former territory of Austria-Hungary; afterwards included in Yugoslavia (q.v.).

BOTANY. The number of reports on research from abroad is beginning to increase in botanical periodicals. Many lines of research were discontinued or reduced during the war while others were greatly stimulated. Guayule has been thoroughly investigated in connection with its cultivation as a source of natural rubber. The following titles from recent issues of the leading botanical journals will give an idea as to the nature and extent of this work. "Growth, Rubber Storage, and Seed Production by Guayule as Affected by Boron Supply"; "Toxic Substances from the Culture Media of Guayule Which May Inhibit Growth"; "Some Anatomical Effects of Moisture Stress in Nursery Seedlings of Guayule"; "Effect of Light Intensity and Nutrient Supply on Growth, Production of Rubber and Seeds of Guayule"; "Winter Hardiness in Guayule; Rubber Content, Stem Anatomy, and Seed Production as Related to Rate of Vegetative Growth in Guayule." These papers have appeared in volume 106 of the *Botanical Gazette* for 1944–45. In other journals one finds: "A Root Rot of Guayule Caused by *Pythium ultimum*" (Phytopathology 35: 636, 1945); "Renewal of Growth by Guayule Transplants" (*Plant Physiology* 20: 137, 1945); "Fertilization Without Reduction in Guayule (*Parthenium argentatum* Gray) and a Hypothesis as to the Evolution of Apomixis and Polyploidy" (*Genetics* 30: 323, 1945); "Apomixis in Guayule" (*Proceedings of the National Academy of Science* 30: 352, 1944); "The Anatomy of Leaf Abscission and Experimental Defoliation in Guayule" (*American Journal of Botany* 32: 250, 1945); "A Differential Stain for Rubber in Guayule" (*Stain Technology* 19: 103, 1944) and "Some Staining Techniques for Guayule Studies" (*Stain Technology* 20: 37, 1945).

Ecology.—Bombed cities in England are proving to be excellent centers for studying plant dispersal. Over 100 species have invaded ground which heretofore had been the site of buildings for centuries. Since there is little prospect that buried seeds are able to germinate at this date, these species represent new arrivals from the

outside. The yellow flowers of coltsfoot and the tall purple spires of fireweed are very frequent; also the ubiquitous dandelion. It is significant that these three plants have seeds or fruits equipped with hairs allowing for wind dispersal. Species with adhesive seeds when wet, as those of chickweed, plantains and shepherd's purse are common where pedestrians congregate. The microscopic spores of mosses and ferns are readily carried by air currents and as a consequence the bracken fern and various mosses are appearing in the naves of bombed churches. Clovers, alfalfa, meadow-grasses, oats and wheat have escaped from the nose-bags of horses and are thriving along streets and in nearby open ground. All information on seed dispersal and invasion of new areas is of value to ecologists in solving problems in plant distribution.

Much as clear cutting in lumbering has been decried in the past, there are some forests which must be clear cut if they are to replace themselves. Chapman (*Ecology* 26: 274–282, 1945) in studying reforestation with the loblolly pine (*Pinus taeda*) of the Southern states, has found that this pine does not establish itself if the competing hardwoods (oaks, gums, etc.) get a two to three year start on it. The pines grow very slowly in shade and are either destroyed by fire or drought. Reforestation with this valuable species is accomplished by clear cutting followed by killing the hardwood sprouts by winter fires. If fires can be excluded for 6 to 10 years after the pine seeds have germinated, an almost pure stand is assured.

Dyksterhius (*Ecology* 26: 195–199, 1945) has discovered that a somewhat unique method of reproduction in Texas needle grass is responsible for its growth under very unfavorable conditions. In addition to the usual type of grass flower, a second kind is borne in the leaf-axils beneath the soil. These flowers do not open, but through self pollination develop viable seed. Needle grass is a perennial except under severe grazing or drought when it dies in summer. Heavily grazed plants do not have a chance to bear seeds from the aerial flowers. The subterranean seeds, however, are produced freely in April, and since they are protected against both grazing and fire, germinate in the autumn. Thus, the plant behaves as an annual. Texas needle grass is considered to be the most important grass in the eastern half of Texas.

Photoperiodicity.—Many plants require a definite photoperiod, i.e. a specific length of day in order to flower and set fruit. The tomato, when subjected to properly controlled temperature, is practically indifferent to the daily length of illumination. According to Went (*Science* 101: 97–98, 1945), a warm day temperature of 26° C. and a cool night temperature of 15–18° C. is best for growth and set of fruit. The cool period is most effective in darkness or in greatly reduced light. Fruit is not set if the plants are subjected to the proper temperature sequence in light.

If fruits are to be obtained, the night-range of temperature must not be above 22° or below 10° C. even though the day range is favorable for growth (15–35° C.). Therefore, tomatoes do not bear fruit in southern California in winter or spring, where the night temperatures are usually below 10° C. and the afternoon temperatures are between 15–20° C. Set of fruit could be expected under these conditions only if part of the afternoon could be converted into a functional night. This was accomplished by the simple expedient of covering the plants with tar paper from 3:00 P.M. until between 7:00 to 8:00 the next morning. Food manufacture was not hindered because the tomato makes its maximum of daily sugar by early afternoon. The first fruits were harvested on April 1, 1944 while noncovered controls did not fruit at all. This experiment conclusively shows that processes occurring at between 15–20° C. in darkness regulate the development of the tomato.

The importance of a dark period is further illustrated by some work on Biloxy soybeans (Parker et al, *Science:* 102, 152–155, 1945). Flower buds are produced if the entire plant or only a single leaflet is subjected to a minimum dark period of 10.5 hours for two or more daily cycles. This dark period must be continuous, an interruption as short as 30 seconds with about 15 foot candles of light will inhibit the production of flower buds. It would seem that the energy absorbed by the chlorophyll is transferred to a reaction which causes the destruction of the material required for initiation of flower buds.

Plant Hormones.—Chemical compounds, known as growth substances or hormones, are being extensively employed by physiologists in studying growth and differentiation in plants. Green tomatoes (Judkins, *American Journal of Botany,* 32: 242–249, 1945) are an excellent source of auxin, an important plant hormone. Fruits from actively growing plants have a higher yield than from slow growing ones at the end of the season. The green tissue is dried rapidly on wires at 160°–180° C., after which it is extracted in water at pH 11.8 for 18 hours at 26° C. Yields higher than previously reported in the literature were secured by this method. Auxin stimulates root production, inhibits the growth of lateral buds and may stimulate cell elongation. It collects on the shaded side of stems and petioles causing the cells to elongate. Unequal growth results and the stem or leaf is turned toward the light.

Several growth substances or factors may be necessary to stimulate growth of an organ. Van Overbeek and Gregory (*American Journal of Botany* 32: 336–341, 1945) report that many economically important woody plants in the tropics such as avocado, cinchona, hevea and mango, root with difficulty. They have discovered a technique for rooting the woody white hibiscus, Ruth Wilcox, which may be used with other woody species. Formerly the white hibiscus was propagated by grafting onto a red flowered species. Abundant rooting may be secured on the white stock if a small leafy twig is grafted on the apex of the cutting. Significantly enough, roots are not formed when the leaves are removed from the red twig. Further proof that a substance passes from the leaves of the red species into the white cutting is secured by girdling it immediately below the graft. When this is done, the cutting fails to root. Auxin must be supplied in all cases for successful rooting. Botanists generally have difficulty in determining whether failure to root is due to a deficiency in growth factor or factors or to the structure of the tissues involved. It is clear that in the white hibiscus two growth factors are necessary—auxin and a substance manufactured in the leaf of the red species. Attempts are being made to isolate the factor from the red hibiscus. Further surveys of the genera in which important but difficult to root woody plants occur, may reveal closely related species which root easily. In such cases the technique employed for propagating the white hibiscus might prove to be successful.

Mention has been made in these columns of applying sprays containing the growth substance, naphthaleneacetic acid, to delay the autumn drop of apples. Superior results may now be secured with 2,4 dichlorophenoxyacetic acid. The effective period is almost double that from naphthaleneacetic acid. In one experiment at Beltsville, Md., apples treated with 2,4 dichlorophenoxyacetic acid were firmly attached to the tree on October 30, while those sprayed with naphthaleneacetic acid dropped at the slightest touch.

Colchicine, the alkaloid used extensively by plant breeders in doubling chromosome numbers, accelerates the germination of mungo bean, corn, cabbage, rice and wheat, in relatively low concentration (10^{-5} M.). An 0.4 per cent aqueous solution when applied to seedlings of 4 species of oak, two species and one hybrid of chestnut and three hybrids of hazelnut or filbert gave double the growth from untreated controls. The solution was applied directly to the apical tip of the seedlings, one drop per day from 4 to 20 days.

Pathology.—The high esteem with which the American elm is held makes the discovery of a new disease of this tree a concern to all. According to Swingle (*American Forests* 51: 334–335, 1945) elms are dying by the hundreds of thousands in the middle and lower Ohio valley from a virus which attacks the inner bark (phloem). Columbus, Ohio, with 80,000 elms lost 15,000 from 1941–43 and 10,000 in 1944, while 20,000 were killed in Dayton, Ohio, last year. The leaves, in two to four months, change progressively from green to pale green to yellow green, to yellow and are then shed. Progressive dying also occurs in the roots. The inner bark becomes yellow to "butterscotch" color and may be flecked with brown or black accompanied by a faint odor of wintergreen. Infected trees so far are not known to recover. The agent for disseminating the virus is unknown; however, insects are suspected. The problem is being investigated co-operatively by the Bureau of Plant Industry, Soils and Agricultural Engineering and the Bureau of Entomology and Plant Quarantine, Agricultural Research Administration.

Genetics.—The plant breeders of the Connecticut Agricultural Experiment Station have developed two new varieties of sweet corn. One is exceedingly early and the other very late. According to the station, it will now be possible to plant six varieties of sweet corn at one time and have mature corn throughout the season.

Another boon to gardeners is a variety of lettuce, valuable for summer use because it does not shoot up a flower stalk. The leaves are light green with a much wrinkled surface. The production of seed in lettuce is known as bolting in the language of the gardener. Since the new lettuce is slow in doing this, it has been named "Slobolt."

Green shoulder, so frequently seen in tomato fruits, is an inherited character according to Brown and Scott (*Journal of Heredity* 36: 169–172, 1945). It is determined by the presence of two genes in the dominant condition. A new variety, Uniform Globe, has been produced by selecting plants which have these genes in the recessive condition. The fruits are uniformly smooth and uniformly colored. Green shoulder may be intensified by unfavorable growing conditions.

The potato, for nearly two centuries, has been intimately associated with the prosperity of temperate countries throughout the world. In economic importance the potato is second only to the cereals. The Russians, before embarking on a potato breeding program, began in 1925 to collect all the known and unknown species throughout the world. Some 220 species are known today. Wild species to the count of 200 grow in cold Alpine regions, deserts and tropical forests from the southwestern United States, through Central America and southward into Chile. Hawkes in a recent paper (*Empire Journal of Experimental Agriculture* 13: 11–40, 1945) has summarized the value of indigenous American potatoes in plant breeding. By crossing a wild species which is frost resistant to –10° C. new varieties may be had for the far north. Certain of the Andean species appear to be ideal parents from which to develop commercial varieties for continuous cropping in the tropics or at least two crops each season. Such varieties are urgently needed in India. Resistance to blight, cause of the disastrous potato famine in Ireland of 1845, has been secured by crosses with a wild species, *Solanum demissum*, from Mexico. A survey of the wild species shows that prospects are good for making crosses which should be resistant to virus diseases, to Colorado potato beetle, perhaps even to flea beetle and at the same time increase both protein and starch content. The breeding program will involve many generations —unfortunately most of the wild species carry undesirable characteristics beside the desirable ones, which must be eliminated by painstaking selection. Many new and improved varieties are about to be introduced. If the geneticists can incorporate all the desirable characters from the wild species into a few hybrids, the work of the potato breeder of the future will be greatly simplified.

Antibiotics.—The discovery of penicillin and its antibacterial properties has led many investigators to seek similar substances in other members of the plant kingdom. Waksman, of Rutgers University, has isolated a new antibiotic, streptomycin from *Actinomyces griceus*. Williams and Harris of the Department of Botany, Oxford University, have tested 700 species of the higher fungi (larger Basidiomycetes) and found 20 to be strongly active and 100 weakly active against the test bacteria, *Staphylococcus aureus* and/or *Bacterium coli*. A survey of 400 fungi, including 200 wood destroying species, was made recently at the New York Botanical Garden by Robbins and his co-workers. Antibacterial activity was secured from 200 species. None gave results equal to that of penicillin. The lichens, representing a symbiotic association of a fungus and an alga, have received their share of attention. Antibiotic substances have been reported in 52 species from about 100 species tested at Yale University by Burkholder and Evans. Investigations on the flowering plants have revealed that buttercup juice has strong antibiotic properties (Seegal and Holden, *Science* 101: 413—414, 1945). Cultures of gram positive and gram negative bacteria were inhibited. Favorable action was obtained against three species of yeast—two of which are potential human pathogenes.

Lycopersicon, a substance inhibiting growth of Fusarium—the cause of tomato wilt—has recently been isolated from the tomato by Irving, Fontaine and Doolittle (*Science* 102: 9–11, 1945). Heinz and Andrus by an ingenious method have shown that resistance to Fusarium wilt in the Pan America tomato is localized in the root system. Pan America scions were com-

pletely susceptible when grafted upon Bonny Best root systems which are highly susceptible. However, Bonny Best scions were 90 per cent free from infection when grafted on Pan America root systems. Antibiotic substances probably occur in all organisms, at least the evidence to date indicates that they are wide spread in the plant kingdom. They undoubtedly play an important role in maintaining life against the inroads of parasitic bacteria and fungi.

The use of penicillin has been extended to the treatment of plant disease. Brown and Boyle wrapped galls produced by the crown-gall organism, *Agrobacterium tumefaciens* in penicillin-soaked cotton. After puncturing the galls in numerous places, their complete destruction followed with little injury to the normal tissues. The crown-gall organism is gram negative. In general, gram negative organisms have been reported as relatively resistant to penicillin. Crown gall is especially destructive in the Southwest. The galls generally develop in fruit trees where the graft was made. It may be possible to use penicillin in nursery practices.

Weeds and Herbicides.—Man, since his earliest experiments in agriculture, has been plagued with the problem of freeing his land of weeds. The natural balance between native plants is upset by agricultural practices and new areas are opened for aggressive colonizers, which immediately, and often disastrously, compete with the crop plants. Any unwanted plant is a weed and according to M. A. McCall (*Journal* of the American Society of Agronomy 37: 378–386, 1945), 2,000,000 acres of good farm land in the United States is out of production because of noxious weeds. They need to be controlled in 300,000,000 acres of farm rotation and permanent pastures; also along railroad right of ways, highways and public lands. Weeds, however, are not confined to the land; many are aquatic and thrive in streams, lakes, dam sites, fish hatcheries and reservoirs. These are often very detrimental and must be eliminated at considerable expense. The United States Bureau of Reclamation spends more than $100,000 annually dragging such unwelcome growth from irrigation canals and drainage ditches. The office of the chief of engineers (U. S. Army) expends nearly $250,000 yearly clearing the beautiful water hyacinth, so highly prized in lily pools, from navigation channels in the streams of Louisiana and Florida.

A variety of chemicals, known as herbicides, when properly applied are effective in weed eradication. Sometimes unfortunate results are obtained as Dr. John T. Middleton of the California Experiment Station at Riverside has recently reported. Certain fields of tomatoes appeared to be infected with a kind of mosaic. The leaves were mottled and the fruits were few and small. The disease, however, could not be innoculated into healthy plants as would be the case in a true mosaic. A check on the cultural history of the fields revealed that sodium chlorate had been used previously to kill bindweed. Effects were noted in applications made five years before the tomatoes were planted.

A new approach in devising herbicides has been taken by P. C. Marth and J. W. Mitchell (*Botanical Gazette* 106:224–232, 1944) in using applications of certain "growth substances" in toxic concentrations; 2–4 dichlorophenoxyacetic acid at the rate of 100 to 250 parts per million in aqueous spray is a differential herbicide. Dandelion, narrow-leaf plantain, Dutch white clover, chickweed, pigweed, woodsorrel, knotweed, broad-leaf dock, bindweed and shining pennywort are killed while broad-leaf plaintain, sheep sorrel, daisy, yarrow and various species of *Rubus* are not affected. Two applications of 500 to 1,000 parts per million gave no apparent injury to Kentucky blue grass sod. The amounts of the "growth substance" are so small that after-effects are not anticipated on subsequent crops; at least, other investigators have shown that twelve species of cereals, lawn and pasture grasses, germinated and grew normally in soils sprayed two months previously.

There are possibilities that chemical treatments of large areas of ragweed can aid in solving the pollen problem for hayfever sufferers. Where the plants are valuable in reducing soil erosion, the spray can be employed immediately before flowering to reduce the pollen discharged into the air. Penta-chlor-phenol and di-nitro-secondary-butyl-phenol give good results and 2–4–dichlorophenoxyacetic acid is being tried.

Spectacular results have been obtained with flame throwers in the battle against weeds. A machine, traveling at a rate of from 5 to 6 miles per hour, has been used successfully in burning weeds out of young cotton and sugar cane.

The careless farmer or gardener who employs slovenly cultural practices is a friend of noxious weeds and provides an ever ready source of seed which plagues his more industrious neighbors.

Longevity of Seeds.—The longevity of seeds has been a subject for much speculation and research. Many a victory gardener has been amazed at the variety of unsuspected weeds that have appeared when perfectly clean sod has been broken for growing beans and tomatoes. Undoubtedly most of these have sprung from seeds which had lain dormant for years under the sod. Even so, it is difficult to believe some of the current accounts that peas taken from the tomb of King Tutankhamen have germinated. Professor Ewart writing in his booklet *On the Longevity of Seed* states: ". . . . such fables as the supposed germination of mummy wheat have long since been exploded." The fable has been revived again in spite of the fact that the longest record of longevity for stored seeds is that of the lotus which germinated after having been in an herbarium for 250 years. In another instance, lotus seeds grew even though they had been buried in an old lake bed for an estimated 400 years! These examples are exceptional. Some weed seeds may remain alive in the soil for more than 60 years, others for a much shorter period. Cereals and most garden seeds do not live beyond 25 years in ordinary air storage. Specially dried wheat when sealed in a bottle has given as much as 16 per cent germination after 25 years of storage. Botanists have yet to publish authenticated accounts of seeds 500, 1,000 or 3,000 years old which have germinated. The fables appear to grow more readily than the seeds!

MARION A. JOHNSON,
Associate Professor of Botany, Rutgers University.

BOUGAINVILLE. See NEW GUINEA, TERRITORY OF.

BOURBON ISLAND. See RÉUNION.

BOXING. See SPORTS.

BOY SCOUTS OF AMERICA. The Boy Scouts movement was brought to the United States by William D. Boyce, and the Boy Scouts of America was incorporated on Feb. 8, 1910, and chartered by Congress in 1916. It is a nonmilitary, nonsectarian, nonpolitical organization for train-

ing boys in character and citizenship. The total active membership on June 30, 1945, was 1,934,252, comprising 1,508,753 boys and 425,499 adult leaders. Its sources of revenue (as of Dec. 31, 1944) included membership fees amounting to $1,056,122.75; contributions of $119,963.21; and endowment of $82,246.16. During the year ending July 30, 1945, the Boy Scouts received 65 requests from the government for war service, including victory gardens, production and conservation, paper salvage, and the promotion of bond sales. The organization also promoted world friendship among nations having scout organizations, made efforts to re-establish scouting activities in these countries, and encouraged scouting among Negro boys. The annual meeting was held on May 17, 1945, at the Waldorf-Astoria Hotel in New York City. The organization publishes *Boy's Life*, a magazine for all boys; *Scouting*, a magazine for scout leaders; five other periodicals, handbooks, and over 500 manuals and pamphlets.

The president of the Boy Scouts of America is Walter W. Head, and the chief scout executive, Elbert K. Fretwell. Organization headquarters: 2 Park Ave., New York 16.

BOYS' CLUBS OF AMERICA, Inc. A national federation of Boys' Clubs which was organized in Boston in May, 1906. Today there are 260 Boys' Clubs and 250,000 boys in the organization. The purpose of Boys' Clubs is the guidance of boys in health, physical, mental, vocational, social, and character development. Boys' Clubs are nonsectarian in control, leadership, and membership. Any boy can belong and fees are so low that any boy can afford to belong. Boys' Clubs have buildings located in congested areas in large cities and in small cities where they are easily accessible to all the boys. Boys' Club activities are essentially character building and include recreation, physical training, vocational training and guidance, and summer camps, under trained leadership.

In the year ended Dec. 31, 1945, the activities of the parent organization were devoted to program planning, personnel training and placement, building planning, publicity and promotion of Boys' Clubs, and field service. Fifteen new member Boys' Clubs were established during the year. Publications of the organization include *Boys' Club Bulletin, Boys Club Service, Boys' Club Courier*, manuals, booklets, and leaflets. Officers on Dec. 31, 1945, were: William Edwin Hall, president; Herbert Hoover, chairman of the board; David W. Armstrong, executive director. Headquarters: 381 Fourth Avenue, New York 16, N.Y.

DAVID W. ARMSTRONG,
Executive Director.

BRADEN, Spruille, American diplomat: b. Elkhorn, Mont., March 13, 1894. Mr. Braden succeeded Nelson A. Rockefeller as assistant secretary of state for American Republics Affairs on Aug. 25, 1945. He had previously served as United States ambassador to Argentina. The 52-year-old Montanan has a background of long experience with Latin America, both as a government official and as a businessman. He was United States delegate to the Seventh Pan American Conference, convened in Montevideo in 1933; chairman of the United States delegation, with the rank of ambassador extraordinary and plenipotentiary, at the Chaco Peace Conference, 1935–39; and the late President Roosevelt's representative at the final settlement of the war between Bolivia and Paraguay, 1939. From 1939–42, Mr. Braden was ambassador to Colombia; from March 1942–April 1945, ambassador to Cuba; and from April–August 1945, ambassador to Argentina. He was educated at Yale's Sheffield Scientific School, where he took his Ph. B. in mining engineering in 1914. In 1920, he negotiated the financing and obtained contracts for the electrification of the Chile State Railways for Westinghouse.

BRADLEY, Omar Nelson, United States Army officer: b. Clark, Mo., Feb. 12, 1893. General Bradley was appointed chief of the Veterans' Administration on June 7, 1945, succeeding Brig. Gen. Frank T. Hines. His appointment came as part of President Truman's reorganization of the Veterans Bureau, which had been under fire for several months as a result of charges that it was failing both to provide the best medical care for veterans already in its hospitals and to prepare adequately for the care of additional wounded.

One of the army's four-star combat generals, Bradley commanded the Twelfth Army Group—made up of the American First, Third, Ninth, and Fifteenth armies—for the Allied conquest of Nazi Europe. He went overseas in February 1943 as aide to General Eisenhower; later held field commands in the Tunisian, Sicilian, and Italian campaigns; and in early 1944, accompanied General Eisenhower to London headquarters as Allied plans for invasion of western Europe neared completion.

A West Point graduate (1915), General Bradley spent the months of the First World War in army camps of northwestern United States as an instructor. He returned to West Point in 1920 and for four years taught mathematics there. In 1925, he was graduated from the Infantry School, advanced course, Fort Benning, Ga., and was assigned to Hawaii for three years, after which he returned to the states to complete courses at the Command and General Staff School in 1929. He is also a graduate of the Army War College (1934). In February 1941, after teaching assignments at Fort Benning and West Point and a period of service with the War Department General Staff, he became commandant of the Infantry School at Fort Benning, and was the first of the West Point class of 1915 to attain the rank of brigadier general. Before he went overseas in 1943, he held division commands at Camp Claiborne and Camp Livingston, Louisiana.

General Bradley holds the Distinguished Service Medal, awarded him for his part in the Tunisian campaign, and the Legion of Merit, for his contribution to Allied successes in Sicily. In October 1944, he was decorated by King George of England with the Order of Knight Commander of the Bath, and on March 12, 1945, was promoted full general (temporary).

BRAZIL, The United States of. A federal republic of South America consisting of 20 states, a federal district and seven federal territories, of which five were created in 1943. These are Amapá, Rio Branco, Guaporé, Ponta Porã, and Iguassú. Its area is 3,286,170 square miles and its population, estimated as of 1945, is 45,300,000. Chief cities are Rio de Janeiro, the capital, 1,782,000; São Paulo, 1,318,000; São Salvador, 294,000; Recife, 353,000; Belén, 209,000; Porto Alegre, 276,000; and Belo Horizonte, 212,000. The basic language and culture are Portuguese. A decree of 1943 established uniformity of orthography, and a treaty effective Jan. 1, 1944 provides orthographic uniformity with Portugal.

The explorer Cabral took formal possession of Brazil for the Portuguese in 1500, but official colonization commenced a quarter century later. The colony was proclaimed an independent kingdom in 1822. Under Pedro I, Pedro II and the intervening regency, the kingdom continued until 1889, when a revolution established the federal republic. In 1930 Getulio Dornelles Vargas, defeated in the presidential election of that year, led a revolt protesting fraud in the elections and became chief of a provisional government. A new constitution, adopted July 16, 1934, inaugurated the second republic, effecting a considerable reduction of states rights, and Vargas was elected president by the constituent assembly after it had declared itself a national congress. Vargas recently promised to hold democratic elections for president and a new congress.

Roman Catholicism is the dominant religion. Approximately 4,200 priests officiate in 2,450 parishes. There is a small active Protestant group of 167,457 scattered throughout all the states, but with the largest proportions in Rio Grande do Sul and Santa Catarina. Church and state are separated and the constitutions of 1934 and 1937 continue to respect the freedom of conscience and worship guaranteed under the constitution of 1891, but divorce is prohibited.

Population.—Much of the population is concentrated in the eastern and especially southeastern area. The number of persons per square mile ranges from 0.6 in the state of Amazonas to 79.2 in São Paulo State. About 60 per cent of the population is of European origin, 30 per cent mixed Indian-Negro-white, 8 per cent Negro, 2 per cent Indian. Japanese and others are less than 1 per cent. More than 4,600,000 immigrants, mostly Europeans, have come in since 1885. Today there are approximately 150,000 German inhabitants plus 1,055,000 citizens of German descent; about 1,000,000 Italians, plus 3,400,000 of Italian descent; and around 250,000 Japanese, chiefly in the State of São Paulo.

Government.—In 1937 after congress had formally declared a "state of grave internal commotion," President Vargas exercised his emergency powers to suspend constitutional guarantees, postponed the presidential election scheduled for 1938, and soon thereafter dissolved the congress and declared a new constitution in effect. This new constitution of 1937, largely credited to Francisco Campos, extended the president's mandate until 6 years after adoption of the constitution by plebiscite. Meanwhile the "transitory and Final Provisions" of the constitution (articles 175–187) provide an authoritarian regime during a state of emergency to last until the constitution is submitted by presidential decree to a national plebiscite (Art. 186–187). In his Independence Day speech, Sept. 7, 1943, and several times subsequently, President Vargas promised that the plebiscite would be held immediately upon conclusion of the war.

Meanwhile municipal, state, and national legislative bodies are suspended until the plebiscite is held. Legislative and executive functions are joined in the presidency until a congress convenes. The federal interventor system of the constitution of 1891 has been retained and state governors have generally been replaced by interventors. Authority of the latter is balanced somewhat by state administrative departments, directly responsible to the federal Ministry of Justice and Interior. Under the constitution of 1937 jurisdiction over police, public health, labor, natural resources and public lands, reserved to the states by the constitution of 1891, are delegated to the federal government. The president's powers are increased to include the power to appoint ministers responsible only to him, to direct internal and external policies, and to nominate one of the presidential candidates. Election by universal suffrage for a term of six years is provided. The national congress is to consist of a Chamber of Deputies, elected indirectly for a 4-year term and apportioned according to population; a Federal Council, consisting of 2 members from each state and 10 appointed by the president; and a National Economic Council built on the corporative principle.

New administrative agencies which have been created, supplementing the work of the regular ministries, include a large and active National Tourist Bureau, established 1945, National Planning Commission (1945), National Council of Railroads (1941), National Council of Petroleum (1939), National Council of Mines and Metallurgy (1940), National Council for Water and Electric Power (1939), Council of Immigration and Colonization (1938), the National Commission for Textbooks (1938), and a Comisão de Industria de Material Electrico (1944).

Brazil and the War.—Brazil severed diplomatic relations with the Axis, Jan. 28, 1942, in accordance with the agreement of the Rio de Janeiro conference of foreign ministers of that month, and President Vargas declared a state of belligerency with Germany and Italy on Aug. 22, 1942. On April 10, 1943, the Brazilian Ambassador to the United States, Carlos Martins, signed the declaration of the United Nations. On May 29, 1944 an agreement was signed with the United Kingdom like the one already in force with the United States, making Brazilians in Great Britain subject to military and other war services and vice versa. Brazil was given full part in approving the final terms of the Italian surrender, and on Oct. 19, 1943, recognized Italy as a cobelligerent.

In October 1943, the government decreed liquidation of 34 German firms and on Jan. 31, 1944 ordered expropriation of all lands granted to Axis nationals except in special cases.

Brazil co-operated in the development of air and naval bases at Recife, Natal, Belém and elsewhere. By March 1943 the base at Natal was reputedly handling a volume of traffic which made it one of the world's largest transatlantic air ports. Equipment and facilities at these bases were turned over to the Brazilian government by the United States in 1945. Brazilian forces collaborated in the anti-submarine patrol of the south Atlantic. On July 16, 1944, the arrival of a Brazilian land and air expeditionary force in Italy was announced under the command of Gen. João Batista Mascaranhas de Morais. During the rest of 1944 and until the end of the war in Europe, Brazilian forces took an active and effective part. There were about 120,000 men overseas.

Brazil also took an active part in the meetings of UNRRA. The personnel of the Brazilian army and navy more than trebled during the war and a very considerable air force developed. Before the end of the war Brazil was building her own planes. The Brazilian navy in 1942 consisted of 2 battleships, 2 cruisers, 1 destroyer, 6 torpedo boats, 4 submarines, 6 minelayers and various other craft. A large number of destroyers, minesweepers, and medium craft were constructed in Brazilian yards during the war. These were augmented by acquisitions from the United States,

until, by the end of the war, the Brazilian Navy was the largest in South America. In addition to war supplies furnished by the United States, Brazil greatly increased its production of critical raw materials and of weapons of war.

Education.—Brazil is engaged in a program to extend its system of free elementary education. Illiteracy among the adult population is estimated at 43 per cent. A total of 42,794 primary schools enrolled 3,350,737 students in 1941; 4,572 intermediate schools had an enrolment of 419,674, while 4 universities and numerous separate faculties and institutes reported 21,098 students. A presidential decree of Nov. 14, 1942 provides funds to assist states in education, and in December 1942 the state interventors agreed to a plan which provides that 15 per cent of state revenues be set aside beginning in 1944 for primary education, and that this proportion be increased 1 per cent each year until a total of 20 per cent is reached. Each municipality, beginning in 1944, is to devote 10 per cent of its income to primary education, increasing the percentage annually until it reaches 15 per cent. A national crusade to gain popular support for a program of general elementary education has been launched in which the Bandeira Paulista de Alfabetizacão is especially active.

Finance.—The Brazilian monetary unit is the cruzeiro (valued about 5 cents in U.S. currency), divided into 100 centavos. Government paper notes in circulation on May 31, 1945, totaled Cr.$15,023,573,731 (cruzeiros). Total national revenue in 1944 and 1945 is estimated to average about $322,000,000, which would afford a slight surplus over expenditures. Income tax revenues which supply approximately one third of the total, were Cr.$291,646,685.60 for the first five months in 1945, and Cr.$241,031,444.30 for the same period in 1944. Brazil's income tax varies according to the source of the income from 1 per cent on earned income to 8 per cent on income from interest. The sales tax is applicable to all articles intended for sale to the public. Territorial property tax, location tax, and the social security tax are other means of compulsory revenue. The latter is compulsory for employees and employers and is operated similar to the social security tax in the United States. The excess profits tax (Degree Law of Jan. 24, 1944) was intended to limit war profiteering, control inflation, and direct war profits toward postwar industrial projects. Compulsory subscriptions to the Brazilian war bonds for the first 4 months of 1945 totaled Cr.$370,499,419.10 in comparison with Cr.$509,477,287.70 for the corresponding period of 1944.

The Decree Law No. 7,293, of the federal government, dated Feb. 2, 1945, was designed for the control of currency and credit, and to prepare the way for the organization of the Central Bank, all activities of the Central Bank meanwhile being under the control of the Bank of Brazil. This latter bank functions as a central bank for Brazil, performing its duties as financial agent for the government and completely controlling all exchanges as well as exports and imports to a large extent. It operates as a central depository for commercial banks, which are required by law to place all surplus cash on hand in excess of 20 per cent with this bank. Various pension and retirement institutes also hold enormous sums on deposit. The Bank of Brazil handles approximately one third of the nation's commercial banking business. In addition, it furnishes rediscount facilities, exercises supervision over general banking activities, and acts as custodian for Treasury-owned gold. The bank issues the national currency and performs many of the duties discharged in the United States by the Federal Reserve System. Assets and liabilities balanced on June 31, 1944, at Cr.$22,195,730,000 ($1,109,786,500).

Brazil leads all South American countries as a desirable credit risk, according to a survey of 163 representative American manufacturers and exporters made by the Foreign Credit Interchange Bureau of the National Association of Credit Men. The survey, covering the first six months of 1945, shows that Brazil shares honors with Cuba and Mexico as the most favorable credit risk in Latin America. Brazil also received the top rating of 100 per cent in the "collection" classification, showing her to be "prompt" in meeting her commercial obligations with American business men. The survey also revealed that approximately "nine out of ten" American exporters during the first six months of 1945 continued to grant their Latin American buyers the same trade terms as they did during 1944.

According to the latest releases of the United States Treasury Department, the private investments of American citizens in Brazil are estimated at $337,242,028. The British investments in Brazil total $951,063,396, or about three times the American investments. Heaviest American investments are in manufacturing, public utilities and transportation, and distribution agencies. Agriculture and mining also represent important investments. The British investments are largely in Brazilian government issues and in railroads.

Communications.—All transport in Brazil experienced growth and expansion under the impetus of wartime pressure. The growth of air transportation surpassed any other nation in South America. Passengers carried in 1944 were 244,516 or nearly three times the volume in 1940. Air freight in 1944 was more than 7,632,255 pounds, or nearly a sixfold increase. The latter was exclusive of 10,573,358 pounds of baggage and mail. There are over 160,000 miles of highways and 243,000 motor vehicles. Railroad extension and reconstruction in some areas supplying strategic war materials received help from the Export-Import Bank of Washington. There are 21,250 miles of track. The National Department of Railroads of Brazil signed contracts in 1945 amounting to $5,244,500 for the purchase of 50 locomotives, all from United States firms. The Brazilian government authorized (1945) the construction of 24 new ships for the Lloyd Brasileiro Line, which is under the jurisdiction of the Ministry of Transportation and Public Works. Fourteen were ordered from United States shipyards and ten from Canada. All are scheduled for delivery in 1946. They will replace about an equal number of ships lost by the Lloyd line during the war. There are 97 broadcasting stations in 78 cities, over 5,000 telegraph offices with approximately 78,000 miles of line in use, and nearly 300,000 telephone instruments. Orders for new equipment and replacement parts in the hands of American manufacturers by the end of 1945 were nearly equal to 25 per cent of all communications equipment now in use. The demand for radio receiving sets is expected to be even greater. There were (1943) 898,000 sets in use. The 4,870 post offices handle about 2 billion pieces of mail annually.

Agriculture and Forest Products.—Brazil's struggle to revolutionize her agricultural econ-

omy, to reduce her dependence on coffee and cotton, has thrown international light on the extensive variation of her products and the possibilities for future development of her natural agricultural and forest resources. Four fifths of the world's coffee is grown in Brazil, the annual production averaging 13 million bags of 60 kilos each, and accounting for over 45 per cent of all Brazilian exports before the war. United States purchases of Brazilian coffee under the Inter-American Coffee Quota Agreement kept exports up during the war (9,300,000 bags annually); nevertheless, large annual surpluses required systematic destruction throughout the war period. According to the Brazilian press, there are 2,154,-610,000 producing coffee trees in Brazil. Brazil's rice production of about 136,000 metric tons per year is the largest in the hemisphere. Cotton ranks second in value among the country's exports, annual production being about 600,000 metric tons. Brazil is the second largest producer of cacao in the world, and this product ranked fourth among her exports in 1945. Annual production has gradually increased in recent years, with the latest estimates at 120,000 metric tons. Brazil was the world's largest producer of sugar until Cuba and the United States came into the competitive field. The 1944 crop amounted to 1,300,000 metric tons.

Annual tobacco production is about 98,500 tons, most of which is consumed locally. Corn is one of Brazil's most important crops, being cultivated on some 3,750,000 acres, and largely consumed within the country. Manioc is an important crop, from which flour, alcohol, acetic acid, dextrines, glucose, and glue are produced. Exports have declined since its use in the making of bread was made compulsory, but it is still in demand as a source of tapioca. Annual production is over 7 million tons.

Brazil is the second largest producer of oranges and the third largest exporter. Lemons, grapefruit and mandarines also are exported. Bananas are grown throughout the country. Argentina is the chief market; therefore, exports were little affected by the war. Exports in 1940 were 10,247,846 bunches.

Brazil's livestock industry is one of the largest in the world, and provides the country with some of its most important exports, meat, hides, and skins. In 1940 there were 45,988,477 head of cattle, 6,488,941 goats, 7,321,010 horses, 25,714,-466 swine, 15,098,500 sheep, and 4,453,905 asses. The zebu from India has been crossed with Brazilian cattle to make the most satisfactory breed now produced in the country.

The forests of Brazil cover approximately one billion acres or over half the area of the country. They are second only to those of the USSR in extent, and rank first in variety of woods and products. Lumbering is becoming an important local industry and exports of lumber rank tenth in importance. Under the stimulus of wartime demands, rubber again became important in Brazilian trade. Production of wild and plantation rubber exceeded 45,000 tons before the end of the war. The rubber agreements between the United States and Brazil were (in 1945) extended to June 30, 1947. The extension continues the validity of (1) an agreement of March 3, 1942, which provides for the purchase and sale of natural rubber and for related matters; (2) an agreement of Sept. 29, 1943, supplemental to the agreement of March 3, 1942, which confirms an increase in the basic rubber price per ton from U.S. $39 to U.S. $45; (3) an agreement of Oct. 3, 1942, which establishes a system for the allocation and supply of tires and tubes; (4) an agreement of Dec. 22, 1944, which modifies the agreement of Oct. 3, 1942, and which provides for the utilization of synthetic rubber in the manufacture of rubber products in Brazil; and (5) an agreement of Feb. 8, 1944, extended by a further agreement of Dec. 12, 1944, which provides for the payment on purchases of rubber of a price premium amounting to 33⅓ per cent of the basic rubber prices.

Brazil's great forests produce over 60 varieties of commercial waxes and vegetable oils. Carnauba wax is the most important, production ranging between 9,000 and 11,500 tons. Uricuri wax, similar to carnauba, is used chiefly in the manufacture of soap. Production is about one fourth the production of carnauba. Brazil nuts form the main export product of the states of Amazonas and Pará, exceeding even the rubber exports. A production of 34,440 metric tons in 1939 dropped to 21,211 in 1942, largely due to the transfer of labor to rubber production. Vegetable oils occupy ninth place among Brazil's exports. This includes cottonseed oil (accounting for about 75 per cent or 26,500 metric tons annually), oticica oil, castor oil, and babassú, linseed, copaiba, corn, and andiroba oils. Small quantities of coffee oil and ucuuba oil are also exported.

Among the fibers produced by Brazil are cotton, silk, flax, jute, caroa, tucumá, and piassava. Piassava is used in making brushes and brooms, tucumá for fishing lines, and caroa is remarkably water resistant and elastic.

The Brazilian silk industry has been helped by Japanese and Italian immigrants, although today the industry is entirely Brazilian-owned. More favorable climatic conditions than those of Japan (Southern Brazil: 4 to 6 harvests of cocoons per year; Amazon Basin: 10 to 12 per year, compared with 2 per year in Japan), have been important factors in creating a production sufficiently large to care for domestic needs as well as a small surplus for exports. The first and still official center of Brazil's sericulture is the Regional Inspectorate of Sericulture at Barbacena, Minas Gerais, though the State of São Paulo is the greatest producer. By 1940, three reeling basins were in operation in that state and at the end of 1944, there were 25 filatures with a total of 2,595 reeling basins. The Sericulture Service of the State of São Paulo plans construction of 33 buildings to house silk spinning mills in the city of São Paulo and the erection of 44 additional mills in various other localities in the state. In 1941, there were 36 silk spinning mills in São Paulo; and 56 in 1943. Other important silk producing states are Espirito Santo, Minas Gerais, Pernambuco, Rio Grande do Sul, Rio de Janeiro and Santa Catarina. Estimates place the 1945 reeled silk production at approximately 500 metric tons (1,102,300 lbs.). Exports are expected to be about 70 per cent of this production.

Yerba maté (or, in Portuguese, Herva matté) production is confined to the southern states and figures largely in the export trade. Annual consumption averages 76 million pounds and exports about 132 million pounds, going mostly to Argentina. Rotenone production has increased under government aid and expanded foreign demand.

Industry.—The value of Brazilian manufactures surpasses that of agricultural production by 200 per cent. Manufacturing industries of Brazil are more highly developed than those of

any other Latin American country except Argentina. Production in 1945 exceeded $1,500,000,000. While large factories exist in Rio Grande do Sul, Pernambuco, Rio de Janeiro and other states, the main industrial center is São Paulo. The principal manufactures have been as follows, in order of importance: foodstuffs, textiles, glass and ceramics, leather articles, iron and steel products, articles of apparel, paper and cement. Brazilian textile mills have exported cotton goods to various other Latin American countries and Africa in recent years. Suitings, shirtings, novelty goods, leather articles, cotton gloves, preserves, chinaware, pharmaceuticals, footwear, carpets, rugs, and silks have found consumers recently in the United States, thus replacing goods formerly imported from Europe and the Far East.

The heavy and basic industries are now being developed, such as steel, aluminum, motor, glass, and paper manufacturing. An Export-Import Bank loan of $45,000,000, matched by an equal contribution of Brazilian funds, has created the huge Volta Redonda steel mill on the Paraiba River, capable of supplying nearly all of Brazil's present steel needs. A new airplane motor factory near Rio de Janeiro now produces the motors for Brazil's new airplane factories.

Since 1937 meat has been the principal food industry, and the most important of the primary industries. The total value of animal production is placed at around $22,000,000, equal to about 40 per cent of total farm output. Brazil holds fifth place in world production and exportation of beef. Annual production is 1,097,000 tons.

The textile and related industries are the second most important manufacturing group and accounted for approximately 35 per cent of the total value of manufactures in 1945. In 1940 there were 340 cotton textile mills with 2,600,000 spindles and 82,000 looms. Production of silk and rayon piece goods, chiefly rayon, increased about 200 per cent in the past five years. A viscose rayon plant, whose yearly production of 20,000,000 pounds will exceed the combined output of other similar plants in South America, is to be built near São Paulo by a United States firm at an estimated cost of $18,000,000, financed entirely by Brazilian private capital. Production of shoes, ranging in recent years from 38 million to 44 million pairs annually, supplies almost all domestic requirements. In order to meet clothing commitments with UNRRA for devastated Europe, the Textile Commission of Brazil has suspended all exports of cotton textiles (until August 1946) to Sweden, Norway, Egypt, Turkey, United States, Spain, Switzerland, Canada, Belgium and Palestine.

The drug, chemical, and related industries were the fourth most important industrial group in 1945. Although Brazil must import large quantities of most of her chemical needs, she is becoming self-sufficient in about 40 of these products. Largest production is in alcohol, perfumes, cosmetics, vegetable oils, paint, candles, explosives and plastics. Brazil now produces a large portion of its needs in tin plate, enameled and galvanized steel, and aluminum manufactured items. The goal of the Brazilian industries is to increase production until many of these items will be on the surplus for export list.

The rubber goods industry has 138 registered factories and production is sufficiently large to warrant some export. Automobile tires and tubes account for about 50 per cent of the output.

Brazil's hydroelectric potential of 19,500,000 horsepower places it sixth in the world. Installed capacity is 700,000 horsepower. Hydroelectric power is expected to prove a basic factor in the postwar industrial expansion of Brazil. The program for development is the most ambitious in Latin America, calling for the construction of several large dams in widely scattered areas. The largest single project so far announced is the São Francisco River project which resembles the TVA in the United States. Other projects are being developed in the Rio Doce Valley.

Mining.—Although one of the richest countries in the world in mining resources, Brazil's most extensive exploitation has been limited to a few strategic minerals. With the cessation of war, Brazilian miners are turning their attention to the production of minerals needed in the rapidly expanding consumer industries. Production of diamonds, bauxite, mica, quartz, rutile or titanium, and tantalite, so much in demand by the United Nations war industries, are expected to maintain a steady output but not continue the rapid upward trend in production which they experienced during the war. Coal and iron output awaits only the improvement in transporation and the necessary equipment to begin a local boom in these and allied industries.

Brazil has about 29 per cent of the world's known reserves of iron ore. Found mostly in Minas Gerais, the Brazilian ore has an iron content of 70 per cent, considered one of the best. With the completion of the Volta Redonda steel mill near Rio de Janeiro, Brazil hopes to supply most of her domestic needs in this metal. Manganese, the component necessary to the steel industry, is an important item in exports, averaging nearly 300,000 tons annually during the war years. Some of the world's largest deposits of aluminum ore or bauxite exist in Minas Gerais, Maranhão, and Espirito Santo. Considerable quantities of this ore have been exported recently to the United States and Argentina. Development of a domestic industry is awaiting machinery from the United States. Reserves are estimated at 150,000,000 tons.

Once the world leader in gold production, Brazil is now in sixth place. Production in 1943 was 4,986 kilos. By law, all gold found in Brazil must be sold to the Bank of Brazil. Diamonds are found in various sections of Brazil but particularly in Minas Gerais, Goiaz, Amazonas, Baía, Paraná, and São Paulo. Brazilian diamonds are exported under two classifications: diamonds and carbonado. The first is the source of gem stones and the latter is a dark variety, opaque, without a clear-cut crystalline form, and usually yellow, dark gray or black. These are generally very hard and largely in demand as industrial diamonds. Recent exports have been as follows (in grams):

	1942	1943	1944
Carbonados	2,723	3,899	2,159
Diamonds	47,164	39,457	38,457

Exports during the first quarter of 1945 were 9,653 grams valued at $2,229,400.

Mica is found in various sections of Brazil, but mainly in the eastern region of Minas Gerais, the southern region of Baía and the southeast of Goiaz. Exports in 1944 were 941,000 kilograms, valued at over $2,300,000. Rock crystals or quartz is found in the states of Amazonas, Maranhão, Ceará, Rio Grande do Norte, Paraíba, Espirito Santo, Baía, Minas Gerais, Goiaz, Mato Grosso and others. Exports in 1944 were 1,122,000 kilograms, in 1943, 2,411,000 kilograms, and in 1942, 1,770,000 kilograms. Titanium is found

in abundance in Brazil, occurring in the form of rutile, principally in the states of Goiaz, Minas Gerais and Ceará. Exports in recent years were as follows:

	Metric tons	Value in dollars
1940	499	70,345
1941	2,369	280,489
1942	4,615	455,116
1943	4,557	630,650
1944	1,564	156,400

Tantalite, rarer than gold, though considerably less expensive at $65 a pound, was so indispensable to American war industry that it was one of ten materials kept under strict censorship. Production in 1944 was about 500,000 kilos. The magnesite deposits of the State of Ceará alone are so vast that they could supply the world's needs for this mineral indefinitely, according to a recent report by engineers of the Brazilian Department of Mines and Metallurgy.

Foreign Trade.—The United States is Brazil's most important customer and the source of most of the country's imports. More than 54 per cent of Brazil's total exports during the first six months of 1945 were taken by the United States. The latter's purchases of Brazilian goods reached the record-breaking total of $133,781,250 with coffee shipments alone amounting to $73,832,400. United States purchases of Brazilian products have risen steadily under the pressure of wartime requirements. In 1939 American purchases accounted for only 36.26 per cent of the total value of Brazilian exports. In 1944, they rose to 53.08 per cent, and the new peak hit during the first six months of 1945 is not expected to be exceeded by the end of the year. Brazil's exports, from January to June of 1945, amounted to 1,393,101 tons, valued at $247,067,650. During the corresponding period last year 1,239,332 tons were exported, valued at $249,674,450. The increase therefore amounted to 12.41 per cent over the tonnage exported in 1944. This increase declined slightly during July when the seven months total showed nearly 11 per cent over the corresponding seven months of 1944. Shipments, most of which continued to go to the United States, totaled $304,480,100 as compared with $289,470,550 during the same seven months in 1944. Tonnage for the same period registered an approximate 6 per cent rise, amounting to 1,635,998 metric tons, as compared with 1,478,098 tons for the same seven months of 1944.

Raw material shipments during the seven months, January to July 1945, showed an increase of 228,470 tons or $5,007,650. Foodstuffs declined 80,845 tons or $9,677,450, though drops in exports of coffee, rice, cocoa, beans, sugar, and meat were less than during the first six months of 1945. Manufactured products increased 10,329 tons or $19,686,350. Brazil's ten leading exports during the first six months of 1945 were: coffee, cotton textiles, raw cotton, rubber, pine, carnauba wax, hides and skins, castor beans, cocoa beans, and preserved meat. These products accounted for slightly less than 50 per cent of total tonnage and approximately 70 per cent of the total value. Cotton textiles deserve special mention, in view of the importance they have assumed recently among Brazilian exports. Principal markets are in South America, where Argentina is the biggest buyer. South Africa is next in importance as a foreign market for Brazilian cotton textiles. Between January and June 1945, the Eastern Hemisphere took 72.54 per cent by volume and 79.71 per cent by value of Brazil's total exports. Europe accounted for 23.25 per cent and Africa 16.45 per cent. During this same six months period Brazil imported merchandise totaling 2,099,952 tons valued at $213,172,450. During the same period of 1944 the volume was 1,828,975 tons valued at $178,051,150. Raw material imports showed a relatively small increase compared with livestock. Though the importation of fuels was not adequate to the nation's needs, shipments of such supplies were higher. Fuel oils and lubricants also registered an increase, though coal imports were somewhat lower and cement imports were more than doubled. The United States supplied by far the larger portion of Brazil's imports.

Important Events.—On Jan. 10, 1945, President Roosevelt nominated Adolf A. Berle, Jr., to be United States Ambassador to Brazil. President Vargas announced February 28, the government's intention to hold general elections, the election date to be announced within 90 days. The elections, first in 15 years, would be for president, deputies and Federal Council members, and President Vargas announced later, March 11, that he would not be a candidate. On March 13, Minister of War Gen. Eurico Gaspar Dutra was nominated to run against Maj. Gen. Eduardo Gomes and the latter's backers claimed this was a move designed to split the army and create confusion.

Relations with Russia were resumed on April 2. On April 4 the United States filed a protest against Brazil's new consumption tax, claiming that items included in the Brazil-United States trade treaty of 1934 as exempt from taxation were mentioned in the new law. Promises to enforce religious freedom and permit legitimate strikes were made April 5 by the new police chief of Rio de Janeiro. On April 15 Brazil agreed to increase its exports of cotton fabrics in the following year by 300,000,000 yards. The agreement, announced by the Combined Production and Resources Board in Washington, also provides for 80,000,000 yards to be purchased by Allied Governments for liberated areas. These new allotments were announced as being in addition to previous commitments of 200,000,000 yards of fabrics in 1945.

Luis Carlos Prestes, famous Brazilian Communist and political prisoner for nine years, was released April 18 under a general amnesty signed by President Vargas freeing political enemies and granting political exiles the right to return to Brazil. On April 26 Prestes indicated that he might be a candidate in the coming presidential elections. On April 21 the Brazilian government revealed it had repaid the first three installments due on materials received under lend-lease. The amount paid was $35,000,000 and was made in March.

President Vargas announced his support of General Dutra for president in a speech on May 1, and repeated his intention to retire to private life. The following day Gen. H. H. Arnold of the United States Army Air Forces arrived in Rio de Janeiro and conferred with President Vargas, and on May 3 General Dutra announced that Brazilian soldiers in Italy would return home at once. A new political party, called the Social Democratic Party, backing General Dutra for president and advocating more private capital development of industry, a federal democratic form of government, free education and protection of labor, was announced May 9. Armando Salles, leader of the Paulista revolt in 1932, died on May 17 in São Paulo.

On May 28, President Vargas officially set

the date December 2 for the presidential and congressional elections, and May 6, 1946, for the election of state assemblies and governors, municipal councils and mayors. Brazilians over 18 were ordered to register. A decree issued October 10 advanced the local elections to coincide with the presidential elections December 2. Cable and wireless companies were instructed to end censorship on press dispatches May 30, and Dr. Julio Barata was sworn in as head of the nation's new National Department of Information. This department succeeds the old Department of Press Propaganda.

Brazil declared war on Japan on June 6. The Brazilian Supreme Tribunal accused President Vargas (June 14), of seizing power illegally on Nov. 10, 1937, and charged him with other political offenses.

In an open-air meeting on Sunday, July 1, War Minister Gen. Eurico Gaspar Dutra was officially proclaimed as a candidate for president of Brazil and promised the backing of the Social Democratic Party. United States Admiral Jonas H. Ingram told Brazil on July 6 that, within two days or by July 8, all naval bases in Brazil occupied by the United States would be returned to Brazil. The Brazilian cruiser *Baía* exploded and sank in the Atlantic about 100 miles off the Brazilian coast on July 8 with a loss of nearly 300 lives. Press dispatches indicated that it struck a submerged mine. The Rev. don Carlos Duarte de Costa, bishop of Maura in São Paulo State, was excommunicated by the Pope on July 6, accused of preaching revolutionary practices. The Brazilian clean-up of Japanese spy elements resulted in the arrest on July 12 of nine Japanese members of a sabotage ring operating in São Paulo. Among them was Col. Jurji Kikkawa of the Japanese Army. United States Gen. Mark W. Clark reviewed the Brazilian Expeditionary Force on its triumphant return to Brazil on July 18.

President Vargas was launched as a candidate to succeed himself on August 1, but he let the deadline of September 2 pass without filing his intention of running for re-election, and on September 10, he decreed amnesty to all Brazilians accused of expressing opinions against him or his regime. On October 3 he told a rally of 100,000 in Rio de Janeiro that "I reaffirm that I am not a candidate for the presidency," and the following day the opposition attacked the speech as full of "evasions." The Brazilian War Minister Gen. Eurico Gaspar Dutra resigned on August 3 in order to campaign for the presidency. He was succeeded by Gen. Pedro Aurelio de Goes Monteiro. Announcement was made on August 4 that the United States-Brazilian rice purchasing agreement was to be extended another year after its expiration in April 1946, and that a 10 per cent increase in price would be effective. The Inter-American Juridical Commission, meeting in Rio de Janeiro on August 10 declared the atomic bomb lawful and further decided that the head of an aggressor state is criminally liable and subject to the judgment of an international tribunal. Permission to publish newspapers in the four hemispherical languages, English, Spanish, Portuguese, and French, was given in an amendment August 11 to Brazil's 1941 publication ruling.

On October 27 isolated street fighting broke out between supporters of President Vargas and followers of presidential candidate General Gomes after the police had forbidden a mass meeting to protest against the holding of the presidential elections scheduled for December 2. On October 30, Getulio Vargas resigned or was forced to resign as president, and, in accordance with Brazilian law, the office was turned over to the Chief Justice of the Supreme Court, José Linhares. João Alberto Lins de Barros, chief of the federal police, was replaced the previous day by Benjamin Vargas, younger brother of President Vargas, and Lins de Barros was announced as the assistant to Linhares.

Getulio Dornelles Vargas seized power in Brazil in 1930 and became president four years later under a new constitution. His term as president was the longest in the nation's history.

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BRAZZAVILLE. See FRENCH EQUATORIAL AFRICA.

BRERETON, Lewis Hyde, United States Army Air Forces officer: b. Pittsburgh, Pa., June 21, 1890. A veteran of the Philippine and Java campaigns, 1941–42, and former United States air commander in the Middle East, General Brereton served on almost all the major battlefronts of the Second World War. His final combat assignment was that of commanding general of the First Allied Airborne Army, activated in August 1944. (Until its creation, all Allied airborne troops, including parachutists, had functioned as part of Allied ground forces and had been divided among the various ground commands.) In September 1944; General Brereton's Airborne Army was landed in Holland astride the Meuse, Waal, and Lower Rhine rivers in the Eindhoven-Arnhem area; this was the largest airborne operation ever attempted, and required the employment of 2,800 planes and 1,600 gliders on the first two days. It was Brereton's 101st Airborne Division which fought so superbly at Bastogne in December 1944.

A graduate of the United States Naval Academy (1911), General Brereton resigned from the navy shortly after he was commissioned an ensign to become a lieutenant in the army's Coast Artillery Corps. He received his flight training in 1912, and in the First World War, commanded an American flying unit on the western front. In addition to his Second World War service in the Pacific, he also took part in the North African campaign as head of the United States Ninth Air Force, and later planned and directed the first devastating air assault (Aug. 1, 1943) on the Ploesti oil refineries in Rumania from which the Axis had been obtaining 3,000,000 tons of oil a year. From February until August 1944, he directed Ninth Air Force operations over Europe. General Brereton's service medals include the Distinguished Service Cross, the Air Medal, the Distinguished Service Medal, the Silver Star, the Purple Heart, and the Distinguished Flying Cross.

BRIDGES. In 1945 a few bridges were completed in the United States and many remained in the planned or projected state; while in Europe literally hundreds of bridges, the product of a half century of designing and building, were destroyed or partly wrecked by the war. The abrupt ending of the war with Japan found most projects still in the planning stage, but several projects, in anticipation of V-J Day, were in position to make an early start. In 1944, the American Association of State Highway Officials estimated the cost of projected highway bridges would amount to about $800,000,000 and other authorities estimated

there would be in addition about $250,000,000 worth of municipal bridges projected. The trend of material and labor costs at the end of 1945 indicated that these figures would be exceeded substantially.

Throughout all the battle ground of Europe the Allies wrecked bridges to hamper the movement of German troops and their supplies, and the Germans furthered this destruction in their desperate effort to prevent Allied invasion of Germany. Practically all the great bridges over the Rhine and other chief rivers were wrecked or damaged to make them impassable. In anticipation of this the British and American Army Engineering Corps had prepared several types of demountable steel truss bridges in addition to the lighter army treadway pontoon type.

Military Bridges.—*The Bailey Bridge.*—The most famous and most used type of these truss bridges is the "Bailey bridge" named after its inventor, Donald C. Bailey, an eminent British civil engineer. It is a simple lattice type truss, made up of 10-foot panels. A section of two of these is light enough for six men to carry. All like parts are interchangeable and are bolted and pinned together on location of the crossing. The cross members that support the floor extend outside the truss at panel joints, and the ends of these support the side bracing of the truss. The usual cross-bracing is used under the floor members. The assembling of the bridge is on rollers leading back from the edge of the bank of the stream. As sections are built back from the edge of the bank the erected part is pushed out overhanging the water, but keeping enough of the sections on the land end to overbalance the outer part. In this way the outer end finally reaches the opposite shore, and there is a corresponding structure extending back on land. To cut down the overhanging weight, and enable the bridge to extend further over the stream, there are a number of specially light sections built on the advance end of the bridge. This is called the "nose", and when it reaches the far bank and is resting on rollers there, the building continues until the heavy section reaches the far bank. The nose is then dismounted for future bridges, and the floor is laid on the regular bridge. This is the method of erecting over narrow streams without falsework. For wide streams, such as the Rhine, the outer end is built and pushed out to a group of special pontoons anchored in the river. With the end resting on the pontoons, building continues by floating the bridge across as it is built. Bridges were put across the Rhine 1,200 feet long in ten days. At Gennep, Holland, a bridge nearly a mile long was put across the Maas (Meuse) River and the adjoining flooded land. The Bailey bridge has a 10 foot, 9 inch roadway. To make a stronger bridge, provision is made for putting an extra truss outside the first truss, doubling its load capacity. Even three lines of trusses can be built on each side of the roadway, and other trusses built on top increasing the truss depth that much, and further increasing its carrying capacity.

Demountable V-type Bridge.—Another outstanding type is the demountable V-type bridge. It is used for spans up to 90 feet for replacing railway bridges, and for spans up to 240 feet for vehicular traffic. These structures are built up of four main duplicating parts of not over 400 pounds each. The two trusses have one common tension member, with the trusses sloping apart and the compression members tied across at the top by the deck beams, making a triangular, or V cross-section. This is the deck type. For a through type the deck beams go across about half way down, giving a cross section like an inverted A. Each truss is connected with a Warren type web system. All like parts are interchangeable. This bridge is erected on piles or pontoons, or on remaining piers of wrecked bridges.

Memphis-Arkansas Bridge.—One of the first major bridge projects to get under way in the United States in 1945, is the four lane Memphis-Arkansas bridge over the Mississippi River. This bridge has been dreamed of for years to meet the needs of increasingly heavy highway traffic at the principal Mississippi crossing below the Ohio River. In 1944 the site was chosen to reach from Iowa Avenue in Memphis to the top of the St. Francis Levee in Arkansas, and located down stream from the two existing bridges, one of which has a two lane highway deck with a railway track between. Plans were completed and in July 1945, contracts were let for the seven main piers to the Merritt Chapman and Scott Company of New York for $4,333,174. The piers will go down 89 feet below the mean low water mark, and will be 200 feet high. The main cantilever span will be 790 feet long. On the Arkansas side there will be 481 feet of reinforced concrete trestle on pile foundations. The bridge is financed by the Tennessee and Arkansas Highway departments and the city of Memphis. The original estimate of $8,000,000 will probably be exceeded by $2,500,000 due to higher labor and material costs.

Harry S. Truman Bridge.—This year saw the completion of the "Harry S. Truman" Bridge over the Missouri River at Kansas City; built jointly by the Chicago, Milwaukee and St. Paul and Rock Island railroads. Total length is 2,633 feet, with a 420-foot vertical lift span over the river channel, electrically operated. The rest of the bridge consists of three 250-foot through truss spans and 19 deck girder spans. The lift span weighs 1,600 tons, and in raised position is 70 feet above mean low water. In closed position 34 feet above low water. The bridge is for a single track railroad to cut off several miles between Chicago and the Southwest.

Santa Fe Railroad Bridge Over the Colorado River.—The magnificent bridge on the Atchison, Topeka and Santa Fe railroad which has been building for some time over the Colorado River was also announced to be finished in 1945 and opened for traffic. It is part of a great rebuilding project of this road to make the Santa Fe system a "hundred mile an hour road" to the Southwest.

Newark-Harrison Bridge.—Work soon will be started in New Jersey on the long delayed bridge to be constructed between Newark and Harrison. The War Production Board cleared the way in June for release of steel for the bridge. This will be a six lane bridge, each 12 feet wide, and with sidewalks, to accommodate the heavy traffic which amounts to from 30,000 to 50,000 vehicles per day. It will have 35 foot clearance over the water, and is expected to cut down draw-span openings 50 per cent.

General.—On Long Island, New York, the State Park Commission has recommended the postwar construction of a $3,000,000 six lane draw span bridge to replace the present narrow Atlantic Beach span over Reynolds Channel. It is recommended that it have 21 feet clearance over water instead of 15 as in the present bridge,

55 feet between concrete piling and a horizonal clearance at the draw span of 100 feet.

In Connecticut a commission was appointed in May 1945 to plan and provide financing for a $6,000,000 bridge over the Connecticut River between Saybrook and Old Lyme.

In New York City the Triboro Bridge Authority reports that for the first time since 1942 the revenues from tolls in the first half of the year exceeded the interest costs plus operating expenses. The five bridges operated by the Triborough Bridge Authority accommodated 9,913,850 vehicles in the first half of the year, an increase of 7.65 per cent over the number of vehicles using the bridges in the first half of 1944, and showed an increase of 8.3 per cent in revenue. This increase in a time when the greatest strictures were in force on motor traffic may be some indication of what revenues will be when the new output of motor cars comes on the market in quantities, and all restrictions are taken off the output of tires and gasoline, a condition much needed to relieve many toll highway bridge companies that now cannot fully meet interest on bonds plus maintenance. The New York Triborough Bridge Authority also has sold $2,750,000 treasury notes to raise funds for the reconstruction work on the Bronx-Whitestone suspension bridge, which is of the same type as the Tacoma Narrows Bridge that collapsed in a strong gale and must be entirely rebuilt. This was due to the plate girder deck stiffening offering too much surface to cross winds.

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BRISCOE, Benjamin, United States naval officer and industrialist: b. Detroit, Mich., 1867?; d. near Dunnellon, Marion County, Fla., June 26, 1945. A pioneer in the early development of the automobile industry, Comdr. Benjamin Briscoe, U.S.N.R. (retired) achieved his greatest success in business as president of the Maxwell-Briscoe Motor Company during the early 1900's.

The automobile industry was in its infancy in 1901 when he helped finance David Buick's first car. In 1913 he brought out the Briscoe car, but with the beginning of the First World War he turned his manufacturing facilities over to war production. This eventually led to his joining the navy with the rank of lieutenant commander. He saw service in both Italy and France and received the Navy Cross. After the armistice, Mr. Briscoe assisted in the development of a new process for refining crude oil and then went to Montreal as an executive in the Frontenac Oil Company. From the oil business he moved into gold mining and ore milling in Colorado. He retired from active participation in business in 1938.

BRITISH CAMEROONS. See Cameroons.

BRITISH COLUMBIA. Third in size among the Canadian provinces, British Columbia has an area of 366,255 square miles, and a population (1941) of 817,861. (Provisional estimate for June 1, 1944, 932,000.) It is traversed by four great mountain ranges—the Rocky Mountains, the Selkirk Range, the Monashee Range, and the Coast Range—all running in a northwesterly direction and approximately parallel. The valleys are richly fertile. Various parts of the province have wide differences in climate, the temperature varying considerably according to the latitude, and the rainfall being heavy or light, according to the degree of exposure to the moisture-laden winds from the Pacific. The coast is rugged and deeply indented, and is protected by a long chain of islands, the largest of which, Vancouver Island (area, 12,408 square miles; 1941 population, 121,933) is a highly prosperous agricultural center. Here is situated Victoria, the capital (pop. of Greater Victoria, 1941, 75,218). Vancouver, on the mainland, is the hub of the province's industrial activities, and ranks third among Canada's cities (Vancouver proper, 1941, 275,353; Greater Vancouver, 351,491). It is an important seaport and a well-developed residential area. Other cities, with their 1941 populations, are: New Westminster (21,967); Trail (9,392); North Vancouver (8,914); Prince Rupert (6,714); Nanaimo (6,635); and Kamloops (5,959).

Education.—Education is free and compulsory between the ages of 7 and 15. In 1942–43 there were 1,179 publicly conducted schools, including elementary schools, junior high schools, high schools, and superior schools, as well as a number of private establishments modeled on the English public schools. The University of British Columbia provides a full curriculum. There are two normal schools.

Government.—British Columbia entered the Canadian confederation on July 20, 1871, and is represented in the Dominion Parliament by 6 senators (appointed for life), and 16 members of the House of Commons. Local or provincial government is administered by a lieutenant governor and a Legislative Assembly of 48 members. In the general election held on Oct. 25, 1945 (the first since 1941), the Liberal-Progressive Conservative coalition won 35 seats, the Co-operative Commonwealth Federationists 9, Labor 1, with 3 seats still unreported on October 27. In 1945 the lieutenant governor was Colonel the Hon. William Culham Woodward (appointed 1941); premier and minister of finance, Hon. John Hart (Liberal).

Revenue and Expenditure.—The estimated revenue in 1944–45 was $34,600,000; estimated expenditure, $34,500,000.

Industries.—The basic industries of British Columbia are logging and lumbering, agriculture, mining, and commercial fishing. These industries, in 1943, yielded the following returns:

Logging and lumbering (actual)	$118,434,000
Agriculture (est'd)	77,500,000
Mining (actual)	65,892,000
Fishing (est'd)	32,500,000

British Columbia, with an industrial payroll of $381,000,000 in 1943, ranked third among the provinces in the production of manufactured goods, specializing in shipbuilding. On Jan. 1, 1945, British Columbia ranked second (to Quebec) among the provinces in available electric power resources, with a 24-hour all-year minimum flow of 7,023,000 horsepower, and an additional 6 months flow of 10,998,000 horsepower. During 1945 the provincial power commission began British Columbia's first public hydroelectric project (a 50,000-horsepower plant on Vancouver Island); planned a unified power system, mainly under public control, for the island; and arranged to take over systems operated by three private corporations. Permission was granted by the provincial government for the importation of some 200,000 horsepower from the Bonneville project in Washington State. The total basic railway mileage in 1942 was 3,849 miles. The 1,000-mile highway from Fort St. John to Fairbanks, Alaska, built during the Second World War by the United States Army, is to pass on April 1, 1946, to the Canadian Army.

	Killed[1]	Missing	Wounded	Prisoners of war	Total
United Kingdom	244,723	53,039	277,090	180,405	755,257
Canada	37,476	1,843	53,174	9,045	101,538
Australia	23,365	6,030	39,803	26,363	95,561
New Zealand	10,033	2,129	19,314	8,453	39,929
South Africa	6,840	1,841	14,363	14,589	37,633
India	24,338	11,754	64,354	[2]79,489	179,935
Colonies	6,877	14,208	6,972	8,115	36,172
Totals	353,652	90,844	475,070	326,459	1,246,025

[1] Including died of wounds or injuries.
[2] Including 20,147 officers and other ranks missing but presumed prisoners.

BRITISH COMMONWEALTH OF NATIONS. In a restricted sense, the collective name for the United Kingdom of Great Britain and Northern Ireland, the Dominion of Canada, the Commonwealth of Australia, the Dominion of New Zealand, the Union of South Africa, Eire, and (sometimes) the Indian Empire. Increasingly, the term has come to include, also, the British colonies, protectorates, protected states, and mandates; "British Empire" and "British Commonwealth and Empire" are other terms used in this sense. The total area of 13,353,952 square miles exceeds one fourth of the land surface of the globe; and the estimated population of 500,774,000 exceeds one fourth of the estimated total of the human race.

The reigning King and Emperor is George VI, born Dec. 14, 1895, son of King George V and Queen Mary; he succeeded to the throne on the abdication of his brother, King Edward VIII, Dec. 10, 1936. He was married to Lady Elizabeth Angela Marguerite Bowes-Lyon on April 26, 1923. Princess Elizabeth Alexandra Mary, born April 21, 1926, is Heiress Presumptive.

During the Second World War, the British Commonwealth of Nations had suffered casualties amounting to 439,959 by the close of hostilities on Aug. 14, 1945. Of this total, 193,934 were the casualties among the British Merchant Navy, the Home Guard, and civilians, casualties among the armed forces, numbering 1,246,025. The latter total was made up as shown at top of page.

Thus, the British of the home islands sacrificed more lives in total than all the rest of the Commonwealth combined. Moreover, they lost a greater number in proportion to population than any other component, a fact demonstrated by the following percentages of lives of members of the armed forces sacrificed in ratio to population:

	Approximate population	Per cent
United Kingdom	47,000,000	.005
Canada	11,500,000	.003
Australia	7,250,000	.003
New Zealand	1,600,000	.005
South Africa	11,000,000	.0005
India	389,000,000	.00006

Besides those in the armed forces, the United Kingdom had these additional casualties:

	Merchant Navy[1]	Home Guard	Civilians	Total
Killed	30,189	1,206	60,585	91,980
Missing	5,264	....	.....	5,264
Wounded	4,402[2]	557	86,175	91,134
Interned	5,556	....	.....	5,556
Totals	45,411	1,763	146,760	193,934

[1] These figures include nationals of the Dominions, India, and the Colonies serving on British registered ships, but exclude deaths of nationals of the United Kingdom serving on ships registered outside the United Kingdom.
[2] The figure for internees includes those who were repatriated or escaped.

Adding these casualties among the British Merchant Navy, the Home Guard, and civilians, the United Kingdom suffered a loss in deaths totaling 337,381, bringing the percentage of casualties to population to almost .007.

BRITISH EAST AFRICA. Four territories under British control in east central Africa, having differing constitutional forms and administrations. The total area is 679,961 square miles, and the population numbers 13,298,473. The territories comprise Kenya Colony and Protectorate, the latter being mainland possessions of the Sultan of Zanzibar extending inland for a distance of 10 miles; Tanganyika Territory, a mandate consisting of the greater part of the former German East Africa colony (Ruanda and Urundi provinces constitute a Belgian mandate); Uganda Protectorate, within which is the considerable native kingdom of Buganda; and Zanzibar Protectorate, which consists of Zanzibar, Pemba, and adjacent small islands.

Areas, populations, and capitals of the territories are as shown at bottom of page.

The territories possess 3,093 miles of railways, 27,607 miles of highways, and government-managed lake and steamer services over 3,853 route miles. While each component has its distinct administration, certain services are common to all or some of the territories. The Court of Appeal for Eastern Africa is composed of judges of the High Courts of Kenya, Uganda, Zanzibar and Tanganyika; the four territories have a common currency—the East Africa shilling of 100 cents; and their local defense force is the King's African Rifles. All four territories give financial support to Makerere College, in Uganda, which provides higher vocational education for Africans. The postal services of Kenya, Uganda and Tanganyika are unified (and have a single stamp issue). On Dec. 12, 1945, the British government announced that an East African High Commission is to be established, consisting of the governors of Kenya, Uganda, and Tanganyika, with the first-named as chairman; this body will have a permanent secretariat at Nairobi. Interterritorial Advisory Boards, with unofficial representation, are to be set up, and an East African Legislative Assembly, with representation of all races and of all three territories, is to legislate for the common services; the Tanganyika Railways are to be combined with the Kenya and Uganda Railways, and the Tanganyika customs department is to be amalgamated with the existing combined Kenya and Uganda customs department. The proposals do not involve closer political union or fusion of the three territories, in each of which the legislative councils will continue to function as at present. In London, there is a trade and information of-

	Square miles	Population	Capital
Kenya Colony and Protectorate	224,960[1]	3,700,155[2]	Nairobi (61,300)
Tanganyika Territory	360,000[3]	5,417,594[2]	Dar es Salaam (74,036)
Uganda Protectorate	93,981	3,930,724[2]	Entebbe (7,231)
Zanzibar Protectorate	1,020[5]	250,000[5]	Zanzibar (45,276)
Total	679,961	13,298,473	

[1] Protectorate, 2,000 sq. mi.; [2] 1943 est. [3] Inc. 20,000 sq. mi. of water; [4] Zanzibar, 640 sq. mi.; Pemba, 380 sq. mi.; [5] 1931 census.

Races	Kenya	Tanganyika	Uganda	Zanzibar	Total
Africans	3,595,155	5,355,786	3,901,440	201,038	13,053,419
Asiatics	55,975	45,099	26,537	14,000	141,611
Arabs	17,640	.....	.....	33,400	51,040
Whites	30,765	16,709	2,747	278	50,499
Others	620	.....	.....	1,284	1,904
Total	3,700,155	5,417,594	3,930,724	250,000	13,298,473

fice representing the territories of British East Africa; and at Nairobi, a (British) Trade Commissioner.

The People.—The indigenous Africans, possessing differing racial origins and backgrounds, present a bewildering complexity of language, religion, and customs. Swahili (or Kiswahili) is the lingua franca, though some knowledge of English is gradually spreading. Most of the people in the coastal regions, and particularly the Arabs, are Moslems; Christian missions of several denominations work among the interior tribes, which are generally pagan. Large numbers of British Indians were brought to the country early in the century for railway construction, and their descendants, augmented by immigrants, are the principal shopkeepers in British East Africa. Arabs were first attracted to Zanzibar in slave-raiding days, and have remained as plantation owners and industrialists. Most white people are British or South African, though in Tanganyika Territory the unofficial element is principally German—in fact, there are now more Germans settled in the mandate than when the country was a German colony.

The populations of the territories are composed as shown at top of page.

During the war the territories also sheltered many thousands of Polish and Greek refugees, besides internees and prisoners of war. Naturalization was suspended in 1944, except in the cases of certain British-born women.

Elementary education is free, and is spreading in all territories. The governments operate separate schools for Africans, Arabs, Indians and white children; there are also Moslem schools, and a large number of schools conducted by missionary bodies are in receipt of state aid. In the large centers of population are a few secondary and technical schools; a practical agricultural bias is given to school teaching. In 1944 a five-year plan was adopted for increasing opportunities for the education of girls in Kenya Colony where, during the past 10 years, the number of them attending school has increased sixfold among the Arabs of Zanzibar, despite early marriage and the purdah of Moslem communities, schools for girls are also increasing in numbers. Basic English is making considerable headway in all schools. All four East African territories send students (including the king of Buganda) to Makerere College, Uganda, which it is planned to develop into an East African University.

Government.—The governors of the three mainland territories are as follows: Kenya Colony and Protectorate, Maj. Sir Philip Mitchell (appointed Dec. 12, 1944); Tanganyika Territory, Sir William Battershill (Nov. 15, 1944); Uganda Protectorate, Sir John Hathorn Hall (Dec. 19, 1944). Each governor is assisted by an executive council of officials and nominated unofficials, and by legislative councils. Unofficial members of the latter, in the cases of Tanganyika and Uganda, are also nominated. The Legislative Council of Kenya, however, comprises, in addition to 20 officials (11 ex officio and 9 nominated), 11 elected whites, 5 elected Indians, 2 Arabs (1 elected, 1 nominated), and 2 nominated representatives of the Africans (1 white, 1 African). In Kenya and Tanganyika, native advisory councils are consulted in matters affecting Africans; in Uganda, local administration is largely entrusted to the *kabaka* (king) of Buganda, and in other areas to native rulers of lesser standing, all of them assisted by *lukikos* (native assemblies). Troops were called out to suppress rioting in a general strike in Buganda in January 1945, eight persons being killed; the cause of the strike was dissatisfaction with the *kabaka's* ministers, the senior of whom was deported in February pending the report of a commission of inquiry. The Sultan of Zanzibar (Seyyid Sir Khalifa bin Harub succeeded Dec. 9, 1911) signs decrees which become binding upon all persons when countersigned by the British Resident (Sir Henry Guy Pilling appointed July 17, 1941); the former presides over an Executive Council, and the latter over a Legislative Council of 14 (8 officials and 6 nominated unofficials).

Finances.—The revenues of the territories are derived from customs, licenses, taxes, court fees, and government-operated railways, steamer services, posts, and telegraphs; expenditures are principally devoted to education, public health, defense, agriculture, forestry, and public works.

	Revenue £	Expenditure £
Kenya Colony and Protectorate (1945–46)[1]	6,250,000	6,133,000
Tanganyika Territory (1944–45)	3,553,000	3,906,000
Uganda Protectorate (1944–45)	2,352,000	2,431,000
Zanzibar Protectorate (1944–45)	477,000	527,000

[1] All figures are estimates.

Development Schemes.—Down to March 31, 1945, East Africa received grants from the British treasury aggregating £2,779,837 under the provisions of the Colonial Development and Welfare Act, 1940. The principal expenditures were for education, housing and land settlement, agriculture and veterinary services, water supplies and irrigation, and communications and transport; lesser sums were provided for nutritional and social services, afforestation, industrial development, and telecommunications. Allocation of the grants between the four territories was as follows:

	Development £	Research £	Total £
Kenya Colony and Protectorate	984,000[1]	47,450	1,031,450
Tanganyika Territory	282,090	58,708	340,798
Uganda Protectorate	1,306,050	.....	1,306,050
Zanzibar Protectorate	97,614	3,925	101,539
Total	2,499,754	110,083	2,779,837

[1] £170,000 was a loan.

Defense.—Manpower, military and industrial, furnished by the East African territories for war purposes has been among the greatest in British Africa. The King's African Rifles, a white-officered native soldiery, is a permanent military force with peacetime stations in all four territories and also in Nyasaland. During the war, augmented by numerous additional battalions, the K.A.R. helped drive the Italians from the northern frontier of Kenya Colony, and then served through the successive campaigns in East and North Africa; sailing thence to India, it shared in the operations in 1944–45 which drove the Japanese from Burma. Kenya troops attack-

ing on the Indawgyi front in Burma in 1945 were joined by a gibbon ape which had deserted the Japanese position; he displayed an inordinate fondness for tea, and when cigarettes were lit for him he blew smoke rings through his nose with great expertness. Four Uganda soldiers of the Busoga district, captured by Rommel at Tobruk in 1943 and subsequently released from captivity in Germany, were repatriated in March 1945; they were welcomed by the governor, who gave each of them a personal gift of a bullock.

Production.—Because of both lowland and highland conditions, there are great varieties of climate and a resulting wide range of agricultural crops. All three of the mainland territories cultivate coffee, tea, wheat, corn (maize), and sugar. In Kenya there are 1,000 coffee estates under white management, 100,000 acres producing 300,000 hundredweight of coffee annually; wheat flour is now exported by Tanganyika, which imported two thirds of its requirements in prewar years. Since the occupation of the East Indies by the Japanese, cinchona has been cultivated in Uganda and Tanganyika, and pyrethrum (which also yields an anti-malaria drug) in the latter and in Kenya; in Tanganyika, 5,300 acres were under pyrethrum in 1945, treble the area three years previously. During the war the area under sisal was greatly increased in Kenya and Tanganyika, both of which countries also have large coconut plantations. A native engaged in tapping coconut trees for liquor near Dar es Salaam early in 1945 was chased by a group of lions and sought safety by climbing a tree; halfway up he saw a large cobra descending and, paralyzed by fear, he lost his hold and fell 40 feet to the ground. Men brought from their huts by his cries drove away the lions, killed the snake, and carried the victim to hospital.

Cotton is grown on a small scale in Kenya, but in Uganda it is the mainstay of the protectorate's economy; in 1944 the Uganda crop was 225,000 bales of 400 pounds, and the crop for 1945 was estimated to amount to 250,000 bales. Both Tanganyika and Uganda produce tobacco and peanuts; and barley, oats, and alfalfa are grown in Kenya and Uganda. Other products of Kenya include flax, rye, wool, and dairy products, while margarine is made from cottonseed and peanut oil, and vegetables are dehydrated for use by troops in the field. Kapok, sesame, cassava, and rubber are cultivated in Tanganyika; abandoned rubber plantations were rehabilitated in 1943–44, the output increasing six fold in 12 months. The Kenya government has opened an agricultural training school for ex-soldiers, and is prepared to grant loans to white veterans wishing to settle in the colony. Zanzibar grows (on 48,000 acres) more cloves than any other area in the world (export in 1943 was valued at £531,120). Shipping difficulties curtailed clove shipments, but there was an increased demand for the protectorate's copra and coir rope; fruit crops occupy 20,000 acres.

The forests in the central highlands of East Africa yield many timbers of commercial importance, including cedar (exported for the pencil industry), conifers, and hardwoods, the last principally olive. Timber production in Kenya in 1944 exceeded fourfold the annual prewar output; new plantings were three times as many as the trees extracted from the forests. Wattle established in plantations in Kenya provides a valuable export in its bark; beeswax, camphor, and mangrove bark are also obtained from forests in Tanganyika and Kenya.

Both the natives and white farmers in all territories possess large numbers of cattle; in Kenya, butter and cheese are manufactured in co-operative creameries. Kenya hides and skins are better shade-dried than any in East Africa; they are known in the leather trade as "mombasas," being named for the port of export.

The territories are rich in mineral deposits. Gold is mined in Tanganyika and Kenya (which are respectively the second and fourth largest producers among British colonial territories) and in Uganda (the protectorate's record nugget of 25 ounces was found in 1944); for the most part, the gold is obtained from reef mines. The largest diamond so far discovered in East Africa (120 carats, valued at £15,000) was found in 1945 in the Williamson mine of the Shinyanga district, Tanganyika; the African who found it, overcome by a reward of £20 and 15 head of cattle, disappeared after collecting the gift and has not since been seen. Mica and talc are mined in Kenya and Tanganyika; tin and phosphates in the latter territory and Uganda; and asbestos in Kenya and Uganda. Kenya also has valuable deposits of sodium carbonate, as well as silver, manganese, arsenical pyrites, cyanite, bentonite, and diatomite, all of which are mined; coal fields were opened in Tanganyika in 1944, and ochre and tungsten deposits are worked; wolfram is mined in Uganda. A five-year geological survey of southern Kenya was commenced in 1945. Only in Kenya has there been any industrial development, and that only during the war. Cardboard is now manufactured, and a good arrowroot is made from edible cannae, while the locally-mined diatomite is used as a basis for the manufacture of metal polishes and cleaning powders. Spinning and weaving were introduced into Kenya and Uganda as native industries in 1944; natives have long made jewelry, mats, and pottery.

Despite difficulties inherent in wartime conditions, the territories have enjoyed buoyant revenues and general economic prosperity. Statistics of overseas trade in 1942 are as follows:

	Exports £	Imports £
Kenya Colony and Protectorate	9,898,453	14,581,248
Tanganyika Territory	6,360,960	4,624,787
Uganda Protectorate	5,659,721	2,765,027
Zanzibar Protectorate	1,137,321	1,216,238

The principal imports are cement, china and glassware, textiles, metal manufactures, motor vehicles, and petroleum products.

Communications.—Railways in the mainland territories (there are none in Zanzibar) have an aggregate length of 3,093 miles. The main line of the Kenya-Uganda Railway, from the coast at Mombasa to Kampala, in Uganda, has a length of 879 miles; 10 branch lines, aggregating 746 miles in both territories, bring the system's total length to 1,625 miles. The railway administration also operates, but does not own, a line of 91 miles from the sodium carbonate deposits of Lake Magadi to Konza Junction. The Central Railway of Tanganyika extends 774 miles from the coast at Dar es Salaam to Ujiji, on Lake Tanganyika, whence is steamship communication with Albertville, a railroad in the Belgian Congo. Two branch lines aggregating 329 miles bring the total length of the system to 1,103 miles: from Manyoni to Kinyangiri (93 miles), an agricultural center; and from Tabora to Mwanza (236 miles), on Lake Victoria. A meter-gauge railway in Tanganyika also runs from the port of Tanga to Arusha (274 miles), a branch from

Moshi connecting with the Kenya-Uganda Railway at Kahe Junction. The administration of the Kenya-Uganda Railway operates 3,853 route miles of steamship services on Lakes Victoria, Kioga, and Albert, and on the upper reaches of the Nile. Vessels operated by the government of Zanzibar maintain connection between the main islands of the protectorate and Dar es Salaam; and others link Zanzibar with Mombasa.

Zanzibar has 243 miles of roads, and on the mainland are a total of 27,364 miles of highways (Kenya, 16,537 miles; Uganda, 7,827 miles; Tanganyika, 3,000 miles); about one fourth of the mileage is fit for motor traffic at all seasons of the year. The Uganda road system connects directly with Juba, in the Anglo-Egyptian Sudan, and with the highways in the Belgian Congo and French Equatorial Africa; but services in Uganda are operated by the Kenya-Uganda Railway administration. Kenya is to spend £400,000 on additional district roads during 1945–46. The Great North Road (928 miles in length), modernized during the war, extends from Northern Rhodesia to Nairobi, Kenya Colony, by way of Tanganyika; an extension northward through Uganda connects with Mongalla, in the Anglo-Egyptian Sudan. The mainland territories lie on the route of the Capetown-London air services operated under the auspices of the British and South African governments, and they also possess local air lines. Local radio stations take some of the programs broadcast from London; they are used, too, for messages from native leaders to East African troops on service in Burma.

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BRITISH GUIANA. A British colony on the northeast coast of South America, bounded on the east by Surinam, on the west by Venezuela, and on the north and northeast by the Atlantic Ocean. The area is 89,480 square miles, and the population was estimated in 1943 to number 364,694, nearly half of whom were East Indian immigrants or their descendants. In 1940 the United States secured on 99-year lease a site for a defensive base on the Demerara River, 25 miles from the sea and within 50 miles of Georgetown (pop. 72,360), the capital. A disastrous fire in the center of Georgetown on Feb. 23, 1945, did damage amounting to $10,000,000; most of the leading industrial properties were destroyed, together with the notable museum of the Royal Agricultural and Commercial Society, which contained rare specimens of the colony's wild life. A governor (Sir Gordon James Lethem appointed July 4, 1941) is assisted by an Executive Council and a Legislative Council; the latter body, by an amended constitution which became effective in 1943, has 24 members, 3 of them officials and 21 unofficials (7 being nominated and 14 elected). Reduction in the qualifications necessary for the franchise and for membership of the Legislative Council was recommended in 1944 by a Franchise Commission. Budget estimates for 1945 anticipated revenue of $11,181,939 and an expenditure of $12,142,332; a total deficit of about $2,000,000 included the cost of subsidization measures. The government gives financial support to 189 schools in settled communities (enrolment 60,021 pupils in 1943) and to 59 others in sparsely populated areas. In 1943, 192,733 acres were under cultivation, mainly planted with sugar cane and rice, lesser areas being devoted to coffee, cacao, rubber, bananas, corn, fibers, citrus, and other fruits. The principal crop is sugar, the estimated production of which in 1945 was put at 146,662 tons. Rice is planted on 73,000 acres; about half of the average annual yield of 50,000 tons is available for export, though in the 1943–44 crop year rice shipments totaled only 19,980 tons. Drainage and irrigation have been undertaken on a considerable scale in order to increase the cultivable area. A new industry is the manufacture of food yeast and animal yeast, which are being made on an experimental scale at Plantation Leonora. Forests cover almost nine tenths of the colony, more than 64,000 square miles of which remain unexplored; trees of economic importance include the greenheart, mora, wallaba, simarouba, letterwood (leopardwood), and crabwood. Cattle in 1943 numbered 159,496, and there were 2,675 horses, 35,581 sheep, 12,940 goats, and 41,766 hogs. The colony is sixth among British colonies as a producer of gold, and a deep diamondiferous belt runs across almost the whole of the country parallel with the coast, 100 miles inland. Other minerals include bauxite, manganese, and mica. Total exports in 1943 were valued at £4,879,733, the chief commodities being sugar, rum, rice, balata, molasses, and lumber. Machinery, textiles, and foodstuffs are the principal imports, the total value in 1943 being £5,138,319. Modes of communication include 95 miles of railway, 472 miles of navigable rivers, 39 miles of canals, and 900 miles of highways. Internal telecommunications are good, and in 1945 radio-telephone service with the United States was established. Georgetown is served by British West India Airways and Pan American Airways. See also BRITISH WEST INDIES.

BRITISH HONDURAS. Situated on the east coast of Central America, 600 miles west of Jamaica, British Honduras has been a British colony since 1862. The area is 8,598 square miles, and the population was estimated in 1944 to amount to 63,311. Belize (pop. 21,367) is the capital; smaller towns include Corozal, Bengue Viejo, and El Cayo. The members of the Belize city council were elected by popular vote for the first time in December 1944. A governor (Sir John Adams Hunter's term was extended for two years from Feb. 25, 1945) is assisted by a seven-member Executive Council (3 officials and 4 nominated unofficials) and a Legislative Council with a membership of 14 (6 officials and 8 unofficials, 6 of the latter being elected); the Legislative Council was considering in 1945 the draft of a new constitution designed to increase its elected membership. Government revenue in 1943 amounted to $1,877,843, expenditure being $1,838,829; the public debt was $2,291,161. There are 80 elementary schools, two of them conducted by the government and 78 in receipt of state aid; 5 secondary schools are also state-aided. The principal agricultural products are bananas and coconuts; in 1943 only 41,801 bunches of the former were exported, however, and exports of coconuts and copra represented 2,879,415 nuts. Grapefruit and cacao are also crops of some economic importance. The cutting and exporting of hardwoods, principally mahogany, has always been the major industry. Total exports in 1943 were valued at $3,745,326, timber products accounting for some 80 per cent of this sum. Imports in 1943 amounted to $5,686,070, about half the total value representing goods from the United States. The colony has 228 miles of roads fit for motor traffic at all seasons, 131 miles of the total having an asphalt

surface; the 1945 budget provided a record sum of $225,000 for new highway construction, and $103,000 for highway maintenance. A new airfield 8½ miles northwest of Belize was under construction in 1945. Air services connect British Honduras with the West Indies and with Honduras. See also BRITISH WEST INDIES.

BRITISH INDIA. See INDIA.

BRITISH MALAYA. A colony (including certain outlying islands) and protectorates in the Malay Peninsula; the former was under British administration, and the latter under British advisement, until occupation by Japanese forces, 1942–45. The total area amounts to 51,166 square miles, and the population was estimated in 1940–41 at 5,560,444. The Straits Settlements is a colony comprising four settlements: Singapore (including Cocos or Keeling Islands, and Christmas Island); Penang (including Province Wellesley); Malacca; and Labuan. The Cocos and Christmas islands lie in the Indian Ocean south of the Netherlands Indies, and Labuan is an island off the northwest coast of Borneo. Protectorates in British Malaya number nine: Perak, Selangor, Negri Sembilan, and Pahang constitute the Federated Malay States (the F.M.S.); and Johore, Kedah, Kelantan, Perlis, and Trengganu are commonly known as the Unfederated Malay States. Singapore is the capital of the Straits Settlements, the governor of which colony is ex officio high commissioner for the protectorates; the governor is also high commissioner of the state of Brunei, and British agent for the states of North Borneo and Sarawak, all three of which are in west and north Borneo (q.v.). Areas and populations of components of British Malaya are shown in the table below.

Component	Square miles	Population	Capital
Straits Settlements:			
Singapore (Singapore Island, 220 sq. m; Cocos Islands, 1 sq. m.; Christmas Island, 60 sq. m.)	281	771,798	Singapore (769,216)
Penang (Penang Island, 110 sq. m.; Province Wellesley, 290 sq. m.	400	419,047	Georgetown (247,460)
Malacca	640	236,087	Malacca (45,010)
Labuan	35	8,963	Victoria (2,150)
Total	1,356	1,435,895[1]	
Federated Malay States:			
Perak	7,980	992,691	Taiping (39,412)
Selangor	3,160	701,552	Kuala Lumpur (141,662)
Negri Sembilan	2,580	296,009	Seremban (28,267)
Pahang	13,820	221,800	Pekan (7,000)
Total	27,540	2,212,052[1]	
Unfederated Malay States:			
Johore	7,500	737,590[2]	Johore Bahru (27,000)
Kedah	3,660	515,758[2]	Alor Star (25,354)
Kelantan	5,750	390,332[2]	Kota Bharu (14,843)
Perlis	310	57,776[2]	Kangar (3,000)
Trengganu	5,050	211,041[1]	Kuala Trengganu (16,000)
Total	22,270	1,912,497	
Total for British Malaya	51,166	5,560,444	

[1] 1941 estimate; [2] 1940 estimate.

The People.—Less than half of the population of British Malaya are Malays. In December 1937, at which time the Asiatic population was estimated to amount to 5,112,000, 42.4 per cent of the total (2,169,000) were Malays; 41.3 per cent (2,114,000) were Chinese; 14.8 per cent (755,000) were Indians; .4 per cent (18,000) were Eurasians (of mixed Asiatic and European blood); and 1.1 per cent (56,000) were Asiatics of various other races. Those born in the Straits Settlements are British subjects, whereas those born in the protected states are British-protected persons. The European population, predominantly British, was estimated to number 28,211 in December 1938.

In the Straits Settlements the government-operated schools give instruction in English, and other schools in the Malay language (the latter free); grants-in-aid are made to schools of both types conducted by missionary and other bodies. Government schools in 1940 totaled 250 (26 of them English), with 38,604 pupils (10,716 in the English schools); and there were 270 state-aided schools (34 of them English), with 41,474 pupils (16,975 in the English schools). The teaching staff in English schools comprised 948 Asiatics, 330 Eurasians, 232 Europeans and 35 Americans; and about 3,000 Malays and 4,000 Chinese constituted the faculties of the vernacular schools. In Singapore, higher education of university standard was provided at Raffles College and at King Edward VII School of Medicine. Vocational and industrial education was available at technical and trade schools. The educational system in the F.M.S. followed along the lines prevailing in the colony. English schools (government and state-aided) in 1940 numbered 49 (13,564 pupils), and vernacular schools 1,734 (145,392 pupils); the latter schools comprised separate institutions for Malays, Chinese, and Tamils (Indian).

Government.—The governor of the Straits Settlements was assisted by an Executive Council of 11 members (6 officials ex officio, 2 nominated officials and 3 unofficials); Malays, Chinese, Indians, and Eurasians, if British subjects, were eligible for membership as unofficials. The Legislative Council, over which the governor presided, comprised 13 officials and 13 unofficials; two of the latter were chosen by the British members of the chamber of commerce in Singapore and Penang, and the others—Europeans, Chinese, Indians and Eurasians—were nominated by the governor. Much local government in the colony (as in the protectorates) was in the hands of municipal councils, harbor boards, education boards, and hospital boards; and advisory boards expressed the needs and views of the Chinese, Mohammedan, Hindu, and Sikh communities.

The federal legislature of the F.M.S. was termed the Federal Council; presided over by the high commissioner (or his representative, the chief secretary), it consisted of 15 officials and 12 unofficial members, all the latter nominated. Laws passed by the Federal Council required the assent of the rulers (sultans) of the four component states; in each state the sultan presided over a state council which consisted of Malay chiefs and officials and unofficials nominated by the ruler. Kuala Lumpur was the administrative capital of the F.M.S.

On Oct. 10, 1945, George Hall, colonial secretary, informed the House of Commons that British Malaya is to acquire a new constitutional status. The nine Malay states (four federated and five unfederated) and two of the settlements of the Straits Settlements (Penang and Malacca) are to be merged in a Malayan Union, the Singapore settlement being constituted a separate colony. Since, at present, the peoples of the settlements are British subjects and those of the Malay states have only the status of "protected persons," agreements will have to be reached with the sultans of the latter for creation of a Malayan Union citizenship. Sir Harold MacMichael is to represent the British government in negotiations with the rulers.

Public Finance.—The revenue of the Straits Settlements was derived from an opium monopoly, various licenses, and import duties on liquors, tobacco and petroleum; revenues of the protected states came from export duties on tin and rubber, from import duties, from opium and from land-sales. In Straits Settlements dollars (1 dollar = 2s. 4d., sterling) estimated revenue and expenditure in British Malaya was as follows:

	Revenue	Expenditure
Straits Settlements[1]	52,331,000	51,034,500
Federated Malay States[2]	77,500,000	72,000,000
Unfederated Malay States[3]	30,642,791	28,369,074

[1] 1942; [2] 1941; [3] 1940–41.

In prewar British Malaya the sale of opium had been a government monopoly, policy having been to reduce consumption gradually with total prohibition as the ultimate objective. On Oct. 9, 1945, the British Military Administration announced the total prohibition of opium sale and consumption forthwith in Malaya and all British protected territories under its jurisdiction. Since success of the new policy depends upon effective control in other countries where the poppy is cultivated or opium marketed, the military administration sought the co-operation of the governments concerned.

Production and Trade.—Rubber was by far the most important agricultural product of British Malaya. In 1937 there were 3,302,170 acres under rubber in plantations, 1,275,822 acres being in small holdings and 2,026,348 acres in large estates; 75 per cent of the latter was owned by British, French, Belgian, and Danish companies, 16 per cent by Chinese, 4 per cent by Indians, and 5 per cent by other Asiatics. Some 70,000 acres were under oil palm, and there were numerous plantations of coconuts and pineapples. Rice, tobacco, and fruits were produced on a lesser scale. Malayan ports exported much rubber from the Netherlands Indies, Siam, Borneo, and French Indo-China in addition to produce of the plantations of British Malaya. Malayan rubber production in 1940 amounted to 539,665 tons, whereas the gross exports of rubber that year from ports of the peninsula amounted to 772,730 tons. Always the leading market for Malayan rubber, 57 per cent of the total exported in 1940 was taken by the United States.

Tin is the most valuable mineral, most of it won from alluvial deposits in the F.M.S. and smelted in the colony of the Straits Settlements. The smelters also treated tin ore from the Netherlands Indies, Siam, Burma, French Indo-China, Japan, Australia, and Africa. Tin exports (and re-exports) in 1940 totaled 130,930 long tons, 78 per cent of the shipments going to the United States. Iron ore was mined in Johore, Kelantan and Trengganu, and other minerals included coal (one mine), gold, tungsten, bauxite, manganese, and ilmenite.

Total exports and re-exports in 1940 were valued at $S1,128,169,000, and imports at $S830,-255,000. One third of the imports were foodstuffs, principally rice, for consumption by the large immigrant population attracted to Malaya for work on the rubber estates. Other considerable imports were cotton piece goods, iron and steel manufactures, tobacco, sugar, and petroleum products. More than £100,000,000 of capital had been invested in British Malaya before the Japanese overran the country. The total trade of the peninsula was relatively immense; in 1926, a peak year, it exceeded that of all other British colonies put together, and in 1938 the total trade exceeded that of New Zealand and was more than half the trade of the Indian Empire.

Communications. — Railroads throughout the peninsula, having a total length of 1,068 miles, were operated by the government of the F.M.S. From the island of Singapore, the main line crossed the Johore Strait by causeway to Johore, traversed that unfederated state to reach the F.M.S., and continued along both coasts of the peninsula; both the east coast and the west coast lines connected with the railroad system of Siam. Highways suitable for motor traffic totaled more than 5,000 miles. Singapore was on the air transport route between Great Britain and Australasia. The peninsula possessed extensive internal and external telecommunications.

End of Japanese Occupation.—British Malaya was attacked by the Japanese on Dec. 8, 1941. The British had withdrawn to Singapore by Jan. 31, 1942, and that great city fell to the enemy on February 15. The Japanese set up in Singapore, renamed Shonan (Light of the South), a military administration of Malaya headed by a director general, with a governor appointed for each state. In 1943 the four unfederated states of Kedah, Kelantan, Perlis, and Trengganu were transferred to the rule of Siam, presumably as reward for that kingdom's co-operation during 1940–41, when Japan was effecting a bloodless penetration of neighboring French Indo-China; and at the same time the island of Sumatra, part of the Netherlands Indies, was annexed to "Japanese" Malaya. Japan attempted to impose a completely planned economy upon Malaya. All business and industry were conducted by a permit system, and by this means the control of economic activities, both large and small, passed wholly into Japanese hands. Great cruelties were perpetrated upon the inhabitants of Malaya, particularly upon the Chinese, who constituted half the population; it was reliably estimated that the Japanese put upward of 100,000 Chinese to death in cold blood in Singapore alone. With the fall of Singapore to the British in 1945, thousands of Malays, Chinese, and Indians were banded in a guerilla People's Army, and, led by British and Australian officers, they waged warfare upon the invaders throughout the occupation. British liaison officers, parachuted into the country from October 1944 onwards, furnished additional equipment and directed extensive sabotage, all activities being by then under the Southeast Asia Command of Admiral Lord Louis Mountbatten. Long before the capitulation of Japan, British agents in Malaya were able to cash their checks and I.O.U.'s at par with Chinese and Indian merchants, for these had been impressed with the recapture of Burma and the great successes of the Allies elsewhere.

On Sept. 2, 1945, after four days of negotia-

tions, Penang, high up on the west coast of Malaya, was surrendered by Admiral Vzuni, commander of the Japanese submarine and air base at that port, and a week later, when minesweepers had cleared the Malacca Strait, Port Swettenham and Port Dickson were reoccupied. British naval units dropped anchor in Singapore harbor on September 3, and the following day an agreement for occupation of the city was signed aboard the battleship *Sussex* by Lieut. Gen. Seishiro Itagaki, Japanese commander in chief in Malaya. First of the occupation troops to land on September 5 was the 5th Indian Division, composed of Sikhs and Gurkhas who had fought since 1940 in Libya, Italy, and Burma. Representatives of the United States, the Netherlands, Australia, France, and China attended the formal surrender ceremonies in Singapore's municipal building on Sept. 12, 1945, when Mountbatten received from Itagaki the capitulation of 85,000 Japanese troops in Malaya and another 500,000 stationed throughout Southeast Asia and the East Indies. Thus ended Japan's dream of a Greater East Asia Co-Prosperity Sphere which was to have embraced an area of 1,500,000 square miles, rich in natural products and inhabited by 128,000,000 people.

Singapore's naval base, which had been the headquarters of the Japanese Tenth Fleet, was found in ruins, the docks smashed from bombings inflicted by India-based Superfortresses and by British planes from Burma; United States naval supremacy had rendered the port almost useless to the enemy. Elsewhere in the city the damage had been negligible and civil officials who had landed with the troops went to work on the economic rehabilitation of the country. A British buying commission arrived to survey the effects of Japan's exploitation of her four-year monopoly, and rubber and tin experts studied the situation in their fields. The Japanese had cleared huge areas of rubber trees to plant food crops in an effort to make Malaya self-sufficient, and most of the mining equipment had been destroyed by the British managers before they left in order to deny tin to the invader. Restoration of normal production in Malaya might require two years to effect repairs.

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BRITISH NAVY. See NAVAL PROGRESS.

BRITISH NORTH BORNEO. See BORNEO.

BRITISH SOLOMON ISLANDS PROTECTORATE. See WESTERN PACIFIC ISLANDS, BRITISH.

BRITISH SOMALILAND. See SOMALILAND PROTECTORATE.

BRITISH TOGOLAND. See TOGO.

BRITISH VIRGIN ISLANDS. See LEEWARD ISLANDS.

BRITISH WAR CASUALTIES. See under BRITISH COMMONWEALTH OF NATIONS.

BRITISH WEST AFRICA. Collective term for four groups of colonies and protectorates, and two mandated areas, bordering on the Atlantic Ocean and the Gulf of Guinea. The total area is 496,525 square miles, and the population is estimated at 27,493,838. The four groups of territories are, from east to west, Gambia, Sierra Leone, Gold Coast, and Nigeria. A governor heads each of the groups, which consists in each instance of a colony and dependent territory. In 1945, the functions of the West African Governors' Conference and of the Cabinet Minister Resident in West Africa were merged into a newly constituted West African Council, composed of the Secretary of State for the Colonies and the governors of the four colonies; this body, which has a permanent secretariat at Accra, Gold Coast, was to hold its first meeting early in 1946.

The four groups comprising British West Africa, their areas and estimated populations, are as follows:

Group	Square miles	Population	Capital
Gambia:			
Colony	69	16,000	Bathurst (21,000)
Protectorate	3,999	189,000	
Total	*4,068*	*205,000* (1941)	
Sierra Leone:			
Colony	2,501[1]	122,000	Freetown (86,937)
Protectorate	25,440	1,878,000	
Total	*27,940*	*2,000,000* (1942)	
Gold Coast:			
Colony	23,937	1,940,789	Accra (74,937)
Ashanti	24,379	737,072	
Northern Territories	30,486	890,170	
Togoland[2]	13,041	391,473	
Total	*91,843*	*3,959,510* (1942)	
Nigeria:			
Colony	1,381	338,444	Lagos (167,000)
Protectorate	371,293	20,990,984	
Cameroons[3]			
Total	*372,674*	*21,329,328* (1943)	
British West Africa	496,525	27,493,838	

[1] Only 271 square miles is administered as a colony; 2,229 square miles is administered as part of the protectorate which, alone, is 25,440 square miles in area.
[2] British (mandated) Togoland.
[3] British (mandated) Cameroons, statistically included with the protectorate, has an area of 34,081 square miles and population (1939) of 868,637.

The People.—The combined population of British West Africa is almost half that of the entire British colonial possessions. Negroes, who constitute the bulk of the people, speak some 40 principal languages. Most of them are pagans; about 8,000,000, chiefly in Northern Nigeria and Gambia, are Moslems; and less than 2,000,000 are Christians. In each colony are primary schools operated by the state; others (conducted largely by missionaries) in receipt of state aid; and, in Moslem areas, "Koran schools" where instruction is principally religious. Effective June 1, 1945, all primary schools in Bathurst, Gambia, were transferred from missionary to government management. Secondary education, while much less widespread than elementary, is on the increase. Freetown (Sierra Leone) Grammar School, celebrated its centenary in 1945. Higher education is obtainable in only a few instances. Fourah Bay College, at Freetown, is affiliated with the University of Durham, England. In 1945 a Day Training College for both men and women teachers was opened in Freetown, providing a two-year course, and at Kumasi, in the Gold Coast, a training school for female nurses was established in order to secure both com-

munity and hospital nurses. Most striking educational institution in British West Africa is the Prince of Wales College, at Achimota, seven miles inland from Accra. Achimota College is a coeducational boarding (residential) school with 700 pupils; all school grades are taught, teachers are trained, and some degree of university education given. Education of the highest technical quality has been adapted at Achimota to African conditions and requirements, the object being to make good citizens of Africa able to benefit a community whose development had been retarded. Two art museums were opened in Nigeria in 1945—at Benin, famous for its ancient brasswork, and Ife, where bronze sculptures have long been made. A Commission on Higher Education which visited British West Africa in 1944–45 recommended that Achimota College and Fourah Bay be raised to the academic status of university colleges, the latter institution, reorganized on a new site, to serve Gambia as well as Sierra Leone; for Nigeria, a new university college was to be founded at Ibadan.

Towns.—Ibadan, in Southern Nigeria, is the largest city in West Africa, its population of 390,000 exceeding that of Indianapolis. Kano, a mud-walled city in Northern Nigeria has 90,000 inhabitants; and Kumasi, capital of Ashanti, contains 45,000. The capitals of the four colonies are ports. In Nigeria, in addition to Lagos, important ports are Victoria, Port Harcourt and Calabar; Takoradi has replaced Accra as the chief port of the Gold Coast.

Government.—The governors of each of the four colonies, who also head the administration of the dependent territories, are as follows: Gambia, Sir Hilary R. R. Blood (appointed Dec. 24, 1941); Gold Coast, Sir Alan Burns (Oct. 1, 1941); Nigeria, Sir Arthur Richards (Dec. 18, 1943); Sierra Leone (Sir Hubert C. Stevenson (July 5, 1941). Each governor is assisted by an Executive Council composed of officials, ex officio, and nominated unofficials (the latter, in all instances except that of Gambia, including two Africans), and by a Legislative Council:

Territory	Legislative Council
Gambia	Includes 4 unofficial nominated members, 3 of them African.
Gold Coast	15 official, 14 unofficial (10 elected, 6 of the total being Africans).
Nigeria	30 official, 19 unofficial (10 of them Africans, of whom 4 are elected).
Sierra Leone	11 official, 10 unofficial (3 elected, and 6 of the total Africans).

New constitutions, both providing unofficial African majorities, were under consideration in the Gold Coast and Nigeria in 1945. In the case of the Gold Coast, it was proposed that there should be 18 elected and 6 nominated unofficials, official representation being reduced to 6 members; while both the colony and Ashanti would be represented, the governor would continue to legislate for the Northern Territories. Of the 49 members proposed for the new Legislative Council of Nigeria, 29 would be unofficial, 25 of them being African; by the inclusion for the first time of members from the Northern Provinces, the Legislative Council would be representative of the entire country. The nine African councilors from the Northern Provinces would be chosen from a bicameral Regional Council, the House of Chiefs nominating four from its own body, and the House of Assembly five. Already, in Northern Nigeria, administrative authority devolves upon the 13 principal native rulers—sultans and emirs; for example, the emirate of Kano (area, 12,000 square miles; pop. 2,250,000) maintains its own treasury, law courts, and police force, and expends considerable sums on education, public health, agriculture, and forestry. Under the new constitution, the Western and Eastern provinces of Nigeria would also have regional councils, each unicameral and termed House of Assembly. The three regional councils of the country would discuss bills before they are submitted to the Legislative Council, and would have some measure of financial responsibility. Provincial Councils already exist in the Gold Coast, where native treasuries collect and disburse revenues; similar bodies in Sierra Leone and Gambia also give effect to the principle of "indirect rule," which exemplifies government of the people, by the people, for the people. About 3,000 British officials of all services are employed in the government of the four territories, the population of which numbers more than 27,000,000; higher grades of the administrative services, from judges to doctors, are increasingly filled by Africans, scholarships providing appropriate training for suitable candidates.

In 1945 the British government paid the sum of £11,420 to the Opobo chiefs of Nigeria which had been promised in 1892 if the heirs and successors of Chief Jaja kept the peace; half a century ago Jaja had been deported for acts of oppression against his own people. The most sensational trial in the history of British West Africa concluded in the Gold Coast in January 1945, when eight sons of the late Sir Ofori Atta (knighted during the First World War) were sentenced to death for ritual murder; in 1944, in accordance with ancient tribal custom, they had removed the heart of another chieftain and buried it with their father.

Finances.—The revenues of the colonies are derived from customs, railroad receipts, licenses, court fees, taxes, and posts and telegraphs; and expenditures are for education, public health, defense, agriculture, forestry and public works.

Territory	Revenue £	Expenditure £
Gambia (1944–45[1])	370,000	366,000
Sierra Leone (1944–45)	1,657,000	1,677,000
Gold Coast (1945–46)	4,976,000	4,892,000
Nigeria (1944–45)	10,162,000	9,589,000

[1] All figures are estimates.

Development Schemes.—The revenues of the colonies sufficing for little more than the cost of recurring expenditures, the British taxpayer has found considerable sums for long-range schemes, which are financed under authority of the Colonial Development and Welfare Act of 1940. The many schemes covered by this expenditure are for such projects as teacher-training, the training of African agricultural and medical staffs, extension of the system of roads, medical and veterinary services, health schemes, water supply, drainage, irrigation, and scholarships for higher education. Allocations down to March 31, 1945, amounting to £8,678,454, were as follows:

	Development £	Research £	Total £
General	139,270	4,850	144,120
Gambia	151,499	. . .	151,499
Sierra Leone	610,450[1]	12,600	623,050
Gold Coast	230,655	18,175	248,830
Nigeria	7,472,255[2]	38,700	7,510,955
Total	8,604,129	74,325	8,678,454

[1] £265,500 was on loan; [2] £175,000 was on loan.

During 1944–45 grants to Nigeria included £1,810,000 for an extensive road-building program (48,000 miles of roads over 15 years) ultimately to cost £7,000,000, about half of which

will be contributed locally; £1,889,000 toward a rural water-supply program which will be completed in 1957–58 at a cost of £5,000,000; and £401,000 for the development of technical education, part of an 11-year scheme to 1956 which will cost £952,497. Over the same period, Sierra Leone's grants included £93,000 for anti-malarial measures; and the Gold Coast received £96,000 to provide scholarships for the higher education and professional training of Africans —tenable at Achimota College and subsequently in Great Britain.

Defense.—Internal security and order is maintained by local police forces, the personnel of which is almost wholly African. Military defense of the colonies is provided by the Royal West African Frontier Force; it comprises numerous battalions of Africans, on long-term voluntary enlistments, recruited in all four colonies. During the Second World War the strength of the R.W.A.F.F. was increased to more than 100,000 men; after serving with distinction through the campaigns in Italian East Africa, the R.W.A.F.F. proceeded to India, and in 1944–45 participated in the operations to expel the Japanese from Burma. Parties of leading chiefs from all four territories were flown to Burma to visit the soldiers, and in order to ensure that the latter received mail, wives drawing allotments of pay at home had to present to disbursing officers letters written on their behalf to their husbands. Soldiers of a West African division guarding their camp in Burma one night in 1945, heard loud crashing from the jungle; it was caused by a domesticated elephant which had walked out on the Japanese and, wanting to be friendly, then crossed into the British lines.

Production.—All four of the territories produce palm oil and palm kernels for export (during the war supplying 40 per cent of the fats of the British fats ration), and all except Sierre Leone do a large trade in hides and skins. Nigerian hides are the most satisfactory in quality of the African hides exported; they are usually arsenicated to guard against insect attack during transit. Goat-skins are more highly valued than Nigerian sheep-skins by United States leather manufacturers. Cocoa is grown on a large scale in the Gold Coast, and to a lesser extent in Nigeria; their combined production represents about half the world's output (French West Africa and Brazil are the other biggest individual producing areas). The British government proposed to set up, with effect from October 1945, organizations to purchase, at its own fixed price, the total production of cocoa in the Gold Coast and Nigeria, and to market it. This contemplated producer-controlled monopoly (there being no consumer representation in the organization) was much attacked, particularly by United States cocoa importers and chocolate manufacturers, as the beginning of a cocoa "cartel." The logging industry of the Gold Coast had a record production in 1944, 2,000,000 cubic feet of mahogany logs being exported. A new electrical process for the coagulation of rubber latex, invented by two South Africans, was adopted during the war in Nigeria, the Cameroons, and the Gold Coast (and also in the Belgian Congo and French Equatorial Africa). The Gold Coast and Sierra Leone cultivate kola nuts on a considerable scale, and the former exports copra and lime products; while ginger and piassava come from Sierra Leone. Beeswax is exported from the Gambia, and that colony, and also Nigeria, have a large trade in peanuts; from Nigeria come cotton lint, bananas, benne seed, and gum arabic. The Gold Coast now grows half her annual requirements of rice, and cultivation of the soybean has commenced on an experimental scale. In Gambia, yam flour is a new product for native diet, while vinegar is now being made from palm wine, and also from bananas.

Gold is produced in Nigeria, Sierra Leone, and the Gold Coast, the last being by far the largest producer in the British colonies; the Ashanti, or Obuasi, mine is one of the richest of the world's large gold mines, normally producing over 200,000 ounces a year from ore carrying nearly an ounce per ton. Before the war (current figures are not available) the Gold Coast was the world's third biggest producer of manganese, with an annual output of well over 500,000 tons, while Sierra Leone's hematite iron ore was being exported at a rate of over 600,000 tons annually. Nigeria produces tin, columbite, tantalite, and coal; a new coal mine was opened in the Eastern Province in 1944 at Nnewi. Diamonds are mined in the Gold Coast, and chrome ore in Sierra Leone; the world's biggest diamond (770 carats) was found in an alluvial deposit in the Gold Coast in January 1945. An entirely new development in the Gold Coast during the war was the mining of bauxite (the source of aluminum), for which purpose a railroad had to be built and roads made through the mountains; another new industry is the manufacture of lime from oyster shells of the fisheries at Kosive Duffor. The West African Institute of Industries, Arts, and Social Science, affiliated with the Prince of Wales College, Achimota, Gold Coast, provides advisory services to governments and others who are stimulating local industrial developments, tests local materials and improved methods of production, and provides advanced training for selected African craftsmen. The trade union movement has made considerable progress during the war, the West African Trade Union Congress having been organized and affiliated with the T.U.C. of Great Britain. Labor advisers attached to the West African governments are recruited from the ranks of British trade unionists.

External Trade.—War conditions have greatly affected the overseas trade of British West Africa. While there was necessarily a considerable reduction in tonnage, the rise in prices much increased values.

Territory	Exports £	Imports £
Gambia[1]	205,614	1,241,839
Sierra Leone[2]	1,592,608	3,814,391
Gold Coast[1]	11,800,000	7,680,000
Nigeria[3]	9,000,000	10,400,000

[1] 1943; [2] 1941; [3] 1942.

The principal imports are cotton piece goods, apparel, iron and steel manufactures, petroleum products, chemicals, liquors, bags and sacks, and cement.

Currency.—The West African Currency Board controls currency in all of the four colonies. Standards are British, with notes for £1 and 10s., and coins, of alloy or nickel, for values ranging down to one tenth of a penny. The circulation of notes and coin on June 30, 1944 amounted to £26,378,126.

Communications.—Railroads with a total length of 3,145 miles operate in Sierra Leone (314 miles), the Gold Coast (490 miles), and Nigeria (2,341 miles); there are no railroads in Gambia, passengers and heavy freight being carried on inland waterways by steamers and launches.

Highways in all colonies usable by wheeled transport total 29,754 miles, Sierra Leone having 998 miles, the Gold Coast 6,610 miles, Nigeria 21,277 miles, and Gambia 869 miles. The southwestern part of the Gold Coast was opened up in 1945 with construction of a road from Esiama to Half Assini; and a new road was built in Ashanti to link Kumasi with Bibiani. In 1945 an extensive road-building program was undertaken in Nigeria to link the territory with the All-Africa Highway; the latter, extending from the Cape of Good Hope to Algiers, is to be completed in 1958–59. War needs have given a great impetus to construction of airfields in British West Africa; by 1945 there were more than 50 airfields suitable for the heaviest planes. Gambia has been selected as the location of a great airfield in the postwar British airways system; the government offices and other buildings in Bathurst will have to be removed to provide the site. There is an extensive system of inland telecommunications, land wire and wireless; and external communications by cable and wireless are plentiful. The colonies possess numerous radio broadcasting stations. Nigeria has four daily newspapers, as has also the Gold Coast, while two are published in Sierra Leone; with one exception, all of them are Negro enterprises. In addition, there are a number of all-African weeklies and bi-weeklies. See CAMEROONS; TOGO.

BRITISH WEST INDIES. Island groups in the Caribbean area constituting six British colonies. The total area is 12,243 square miles, and the population numbers approximately 2,436,261. The colonies are as follows:

Colony	Square miles	Population	Capital
Bahamas	4,404	73,217	Nassau (20,000)
Barbados	166	200,764	Bridgetown (70,500)
Jamaica	4,450	1,237,391	Kingston (108,973)
Leeward Islands	422	100,447	Saint John (10,000)
Trinidad and Tobago	1,980	546,088	Port of Spain (105,195)
Windward Islands	821	278,444	Saint George's (5,000)
Totals	12,243	2,436,351	

In consideration for the transfer of fifty 20-year-old destroyers to Great Britain in 1940, the United States obtained on 99-year lease naval and air bases in the Bahamas, Jamaica, Leeward Islands, Trinidad, and Windward Islands.

The white population, mainly British but including many of French and Spanish descent, comprises but a small proportion of the inhabitants. Negroes and colored people are in the majority, though in come colonies, notably Trinidad, there are large numbers originating in British India or in China.

British Guiana (where there is also a United States base) and British Honduras, mainland colonies in the Caribbean, are considered for some purposes as within the British West Indies. They were so regarded by Oliver Stanley, secretary of state for the colonies, when, in March 1945, he addressed a letter to the governors of the eight colonies urging upon their peoples consideration of the advantages of political federation. Greater economic stability would result from union of the colonies, administrative costs would be reduced, and efficiency increased; and the federation could anticipate an eventual status of self-government comparable to that of a dominion. In some instances, notably in the Bahamas, there was considerable objection to the project, but on the whole it was well received.

Meanwhile discussions are proceeding for effecting a unified West Indian currency, a customs union, uniform quarantine regulations, and a unified radio service. In 1945 a Department of Civil Aviation was set up for the entire Caribbean area, and government subsidies enabled British West Indies Airways to expand its services during the year. The commission on higher education, under Sir James Irvine, which visited the Caribbean in 1944, recommended in its report the next year that a University of the West Indies be established in Jamaica (q.v.). Matters of common concern to the West Indian colonies and to United States territories in the area are considered by the Anglo-American Caribbean Commission (q.v.).

Sir J. S. Macpherson, British co-chairman of the Anglo-American Caribbean Commission, is also comptroller for development and welfare for all the British West Indies. With headquarters in Jamaica, he supervises the development schemes, research work, and improvement of health and educational facilities made possible by grants and loans provided by the British taxpayer under the terms of the Colonial Development and Welfare Act, 1940. Down to March 31, 1945, the West Indies received a total of £8,690,113 (£7,366,591 in grants and £1,263,492 as loans for 291 schemes of development and welfare; and £60,030 in grants for 9 schemes of research work), the allocation being as shown below.

A new Colonial Development and Welfare Act which became effective April 25, 1945, more than doubled the sums made available by Great Britain, and extended the date of the schemes to March 31, 1956.

Particulars of government, education, trade, and communications are given in separate articles on the various colonies.

Territory	Development and welfare			Research		Total £
	No. of schemes	Grants £	Loans £	No. of schemes	Grants £	
General	22	312,925	.....	4	41,130	354,055
Bahamas	1	3,450	.....	..	.....	3,450
Barbados	12	324,700	45,742	1	1,700	372,142
British Guiana	46	700,858	345,180	2	9,000	1,055,038
British Honduras	13	409,145	.....	..	.....	409,145
Jamaica	68	2,967,615	753,600	2	8,200	3,729,415
Trinidad	5	288,419	.....	..	.....	288,419
Leeward Islands*	53	917,422	74,516	..	.....	991,938
Windward Islands*	71	1,442,057	44,454	..	.....	1,486,511
Totals	291	£7,366,591	£1,263,492	9	£60,030	£8,690,113

* The Leeward Islands and the Windward Islands share jointly in 8 of these schemes.

BRITISH WOMEN IN THE WAR. The women of Great Britain both participated in and were affected by the momentous events of 1944–45. When the end of the war with Germany came on May 8, 1945, the womanpower of the nation, mobilized at extraordinary levels for 4 years, was actively functioning in the vast war effort. It continued to be essential to the end of the Japanese war and in the subsequent reconstruction. Official data show that of the total woman population aged 14 to 59 of over 16 million, 6.8 million were in the national service of the country in May 1945, including 1,539,000 in munitions work, and 445,000 in the armed forces. Women constituted 34 per cent of all munitions workers and 40 per cent in other industries.

Before May, the chief policy changes affecting women were the compulsory sending overseas of women in the Auxiliary Territorial Service and the return of workers who had been released from the shoe and clothing industries earlier in the war under concentration schemes. Skilled ex-operatives were interviewed and asked to return to the industry from their war jobs.

Following V-E Day the stringent measures affecting women were relaxed. Various groups of women could now leave employment if they wished—all women over 60, women over 50 unless individually essential to production, any women, married or single, with household responsibilities, and married women joining husbands released from the services. Women over 40 would generally no longer be called for interview, while women working away from home for 3 years or more would be allowed if possible to transfer nearer home. However, with the new exception of certain professional work, women from 18 to 40 still could be hired only through employment exchanges.

In August 1945 it was announced that releases from the forces by the end of the year would include 100,000 women. With the beginning of the reconstruction period, plans were made to accelerate transfer of workers from the contracting munitions industries and from the forces to the textile, clothing, footwear, and food industries, all important woman-employers.

The period under review saw considerable interest in programs important for postwar readjustments, some particularly concerned with women. A Royal Commission on Equal Pay began its meetings in October 1944. "Equal Pay," however, remained far from achievement despite wartime pressures. A survey, by the National Shop Stewards' Council, of over 30,000 women in 58 factories showed that nearly 12,500 were doing men's work, but only about 2,000 were receiving the full men's rate. Women's average weekly earnings in important British industries in January 1945 amounted to but 63s. 2d. compared with 119s. 3d. for men.

Another fundamental problem involved improving conditions in the industries from which many women had gone into the better-paid war industries with their superior working conditions. Two thirds of the women participating in a survey by the Amalgamated Engineering Union wished to remain in engineering after the war, though only about one fifth had been in the industry before the war. Domestic workers especially showed little interest in returning to their former occupation. To improve the domestic employment field a government White Paper proposed formation of a National Institute of Houseworkers which would supply competent workers and adopt regulations for minimum wages and conditions of work.

Advances for women in social and economic spheres in 1944–45 included establishment of wage boards in the restaurant and other food service industries, allocation to the mother of family allowances (payable to 2.6 million families with 2 or more children), government encouragement of opening London medical schools to women, and the election of two women scientists as fellows of the Royal Society. The trade-union woman received recognition in the government-sponsored exchange visits of eight British and American women trade unionists engaged in the electrical, hosiery, clothing, and metal industries.

In July 1945, in the first elections since before the war, 24 women obtained seats in Parliament. Of these, 21 were Labor seats and one each Conservative, Liberal and Independent. Miss Ellen Wilkinson was appointed minister of education in the new Labor Cabinet.

JANET M. HOOKS,
Women's Bureau, U. S. Department of Labor.

BROOKINGS INSTITUTION. An organization devoted to public service through research and training in economics and government. It maintains a division of training for advanced research but the granting of fellowships for such, suspended during the war, has not been resumed. During 1945, the institution conducted a number of research studies which were published under the following titles: *International Tribunals: Past and Future,* by Manley O. Hudson; *Labor Policy of the Federal Government,* by Harold W. Metz; *Postwar Fiscal Requirements,* by Lewis H. Kimmel and associates; *Debtor and Creditor Countries, 1938–1944,* by Cleona Lewis; *Should Price Control Be Retained?* by Harold G. Moulton and Karl T. Schlotterbeck; *Business Leadership in the Large Corporation,* by R. A. Gordon.

The institution is supported from endowment funds and annual grants from philanthropic foundations. The officers of the board of trustees for 1945–46 were: Chairman, Dwight F. Davis; vice chairman, Dean G. Acheson; president, Harold G. Moulton; vice president, Edwin G. Nourse; treasurer, Henry P. Seidemann; and secretary, Elizabeth H. Wilson. Headquarters are at 722 Jackson Place, Washington, D.C.

BROWN, Mary Agnes, lieutenant colonel in the United States Army's Women's Corps, who on Aug. 25, 1945, was named adviser to Gen. Omar N. Bradley, chief of the Veterans' Administration, on all matters dealing with women veterans. A native of Washington, D. C., and a graduate of George Washington University, Lieut. Col. Brown had a record of 22 years' service with the Veterans' Administration before she entered the Women's Army Auxiliary Corps in 1942. For 12 years, she was executive secretary to the administration's medical director; became an attorney during this period; and then for 10 years, held a position in the solicitor's office of the administration. At the time she joined the army, she was president of the Women's Bar Association of the District of Columbia. She later served as executive officer to Col. Oveta Culp Hobby, former WAC director, and in March 1944, was appointed staff director at Gen. Douglas MacArthur's South Pacific headquarters. In that job she had the supervision of some 5,000 Wacs. On Aug. 28, 1945, she was awarded the Legion of Merit for her South Pacific service. She has also seen 8 months duty in Australia, 4 months in New Guinea, and 3 in Manila and Leyte.

BRUNEI. See BORNEO.

BRYAN, Charles Wayland, former governor of Nebraska: b. Salem, Ill., Feb. 10, 1867; d. Lincoln, Nebr., March 4, 1945. Brother and close associate of William Jennings Bryan, "The Great Commoner," Mr. Bryan himself had a long and distinguished career in the field of politics and public service. He was the Democratic nominee for vice president in 1924, and served as governor of Nebraska during the terms 1923–25, 1931–33, and 1933–35.

Mr. Bryan attended the University of Chicago and Illinois College at Jacksonville, and for several years thereafter was a traveling salesman. In 1891 he settled in Lincoln to become the political secretary and business agent of his brother. Ten years later, he assisted his brother in founding and editing *The Commoner.* Devoting much time and energy to civic matters in Lincoln, Mr. Bryan served as city commissioner, chairman of the park board, member of the Municipal Ownership League, and mayor for two terms, 1915–17, 1935–37. He won his first election for governor by a margin of more than 50,000 votes, and this evidence of his popularity, in addition to the prestige that the name of Bryan still possessed in the Middle West, was responsible for his nomination for the vice presidency in 1924, but the Democratic ticket was crushingly defeated by Coolidge and Dawes.

BUCKNER, Simon Bolivar, Jr., United States Army officer: b. near Munfordville, Ky., July 18, 1886; d. Okinawa in the Ryukyu Island chain, North Pacific Ocean, June 18, 1945. Commander of the United States Tenth Army, Lieutenant General Buckner was killed by enemy shell fire only a few days before he would have been able to add "conqueror of Okinawa" to his unofficial titles of "defender of Alaska" and "liberator of the Aleutians." The bitter Okinawa campaign was nearing its conclusion when he met his death.

The 58-year-old general led troops of the American Tenth for the Easter Sunday invasion (April 1, 1945) of Okinawa, strongest link in the Ryukyu Island chain joining Formosa (Taiwan) with Japan, and vital land, sea, and air base. The Okinawa landings marked the third time General Buckner had taken a major role in the Pacific war. Ordered to the North Pacific in the spring of 1940, he built Alaska's defenses, and in June 1942, parried the first Japanese thrust at the North American mainland with planes from his secret base west of Dutch Harbor, forcing Japanese forces to fall back on Kiska and Attu in the Aleutians. He later coordinated his army forces with the North Pacific naval forces of Vice Admiral Thomas C. Kinkaid for the 15-month Aleutians campaign.

Son of a Confederate lieutenant general, Buckner was educated at Virginia Military Institute, West Point, the Infantry School (Fort Benning), the Command and General Staff School, and the Army War College. He saw service on the Mexican border, in the Philippines, and with the Aviation Section of the Signal Corps in the First World War. Between the two wars, the majority of his assignments were administrative or teaching jobs at the various army camps and schools throughout the United States. He was promoted to the rank of lieutenant general (temporary) in May 1943, and in that same year, was awarded the Distinguished Service Medal for his successful organization of the Alaskan defenses. He began the organization of the American Tenth Army in June 1944.

BUCKWHEAT. According to the Department of Agriculture, the 1945 crop of buckwheat in the United States totaled 7,756,000 bushels, compared with the 1944 crop of 9,166,000 bushels and the 1934–43 average crop of 7,121,000 bushels. In 1945, Pennsylvania led in production with 2,460,000 bushels, followed very closely by New York with 2,244,000 bushels. Michigan was the third largest producer with 416,000 bushels.

BUCOVINA. See RUMANIA.

BUILDINGS ADMINISTRATION, Public. See FEDERAL WORKS AGENCY.

BULGARIA. This Balkan country has a prewar area of 39,814 square miles and a population of 6,308,000 (1940). It is a monarchy under a child king, Simeon II, operating under a Regency Council.

Production and Trade.—Eighty per cent of the population is engaged in agriculture; 40 per cent of the total area is arable, used mostly for grain crops, especially wheat. Beans, vegetables, and table grapes are also grown. During the war, through the annexation of Greek tobacco lands, Bulgaria became the largest tobacco grower in Europe, with an output of about 71,000 metric tons in 1943. Since the return of these lands to Greece, Bulgarian tobacco production has been reduced by half. Other industrial crops are sugar beets, cotton, hemp, flax, sunflower seed, and rose for attar. The livestock and poultry industries are widespread. Lignite coal is the only notable mineral produced, and the manufacturing of textiles is the chief industry. In the prewar years Bulgarian exports, consisting primarily of tobacco and foodstuffs, and imports, comprising metal and textile products, were being traded chiefly with Germany. During the war this trade was monopolized by Germany. Since the Russian occupation, the Bulgarian economy has been geared to meeting the Russian reparations payments and the needs of the Soviet armies. In September 1945 such reparations were reduced to ease the Bulgarian economic plight. Although the United States on March 29, 1945, lifted restrictions on commercial and business communications with Bulgaria, the Treasury has continued its freeze of Bulgarian assets in the United States.

In 1940 the railway system consisted of 2,212 miles of road. Bulgaria had also 493 miles of telegraph lines and 13,102 miles of telephone lines. The leva is the official monetary unit, highly inflated since 1939.

Principal Events in 1945.—During 1945, Bulgaria came more and more under the influence and control of Soviet Russia. Following the armistice, the Soviet armies occupied Bulgaria, and an armistice commission headed by a Russian general assumed responsibility for the administration of the armistice terms. Meanwhile, a provisional government, agreeable to the Soviets, had been organized under Premier Kimon Georgiev, leader of the newly created Fatherland front, and a new Regency Council was established.

The Georgiev government was composed of representatives of the Agrarian, the Union Zveno, the Social Democrat, and the Worker (Communist) parties. The Communists, although a small minority, have since exercised the real power, however. With the portfolios of Justice and Interior in their hands, they controlled the courts, organized a militia operating under their orders, and assumed control over press and radio. Then, according to reports, they proceeded to exterminate all political opponents through trials

in "People's Courts" and by other means. It is reported that between 1,500 and 2,000 persons, indicted as war criminals or collaborationists, have been sentenced to death, including Prince Cyril, brother of the late King Boris and regent before the armistice, and three former prime ministers: Bogdan Filov (Philoff), Dobri Boshilov, and Ivan Bagrianov. Although Soviet Foreign Commissar Molotov announced a policy of non-intervention in Bulgarian internal affairs, the Soviet occupation authorities have done nothing to interfere with the activities of the Bulgarian Communists. Until the autumn of this year, American correspondents were barred from Bulgaria and all events were masked by a heavy curtain of censorship, making it difficult to appraise the real situation in this Balkan country.

Meanwhile the government set August 26 as the date for election of members to Parliament, under a repressive electoral law which, critics charged, disfranchised many voters and intimidated the opposition. In protest, six ministers (one Independent, one Socialist, and four Agrarian), representing potentially the opposition parties, resigned. Taking cognizance of these developments, the United States and Great Britain finally agreed to take a strong stand against the Georgiev regime. On August 18, United States Secretary Byrnes informed Georgiev that the Bulgarian Cabinet was not adequately representative of all the important democratic elements in Bulgaria and that the special electoral law under which the scheduled elections were to take place would not ensure a free participation of all these elements. Said the secretary in his note: "In the opinion of the United States government, the effective participation of all important democratic elements in the forthcoming election is essential to facilitate the conclusion of a peace treaty with a recognized democratic government. The will of the majority of the people can be determined only if all the people are able to vote free from force and intimidation." Three days later, the British Foreign Minister Bevin characterized the Georgiev government as "totalitarian" and the present electoral law as inconsistent with the principles of liberty. "We shall not, therefore, be able to regard as representative any government resulting from elections," concluded Mr. Bevin. Notwithstanding Russian approval of the Georgiev policies, the stern warnings administered by Byrnes and Bevin had the desired effect. Soon after the delivery of the British and American notes, the Bulgarian Cabinet announced the postponement of the elections until November 18, and approved a series of measures intended to give legal standing to the four opposition parties and to permit free discussion and participation in the elections. The government also announced pardons for 302 persons sentenced by the People's Courts and the reduction of 401 sentences.

Still easily amenable to Russian direction, Bulgaria also sought to gain favor with Marshal Tito in the hope of avoiding the penalties of a defeated Axis partner and of strengthening its position in the Balkans. Following a visit to Tito early in the year, Premier Georgiev announced that a "fraternal treaty" had been signed with the Yugoslav government on Oct. 2, 1944. It was reported later that Georgiev had made overtures to Tito for Bulgaria's inclusion in a "Yugoslav Federative State." Both leaders also brought serious charges against Greece for alleged persecution of the Slavic minority in Greece, revealing a plan to create an "autonomous" Macedonia at the expense of Greek territory. These charges were denied and the British expressed their opposition to any Bulgar-Yugoslav block that might prove a menace to Greece or to British interests in the Mediterranean.

In September, the Council of Foreign Ministers convened at London to draw up peace treaties with Bulgaria and with other German satellites. Soon the conference found itself in a deadlock, however, and it adjourned with no decisions taken.

HOMER P. BALABANIS,
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BUREAU OF COMMUNITY FACILITIES. See FEDERAL WORKS AGENCY.

BUREAU OF MINES. See MINES, UNITED STATES BUREAU OF.

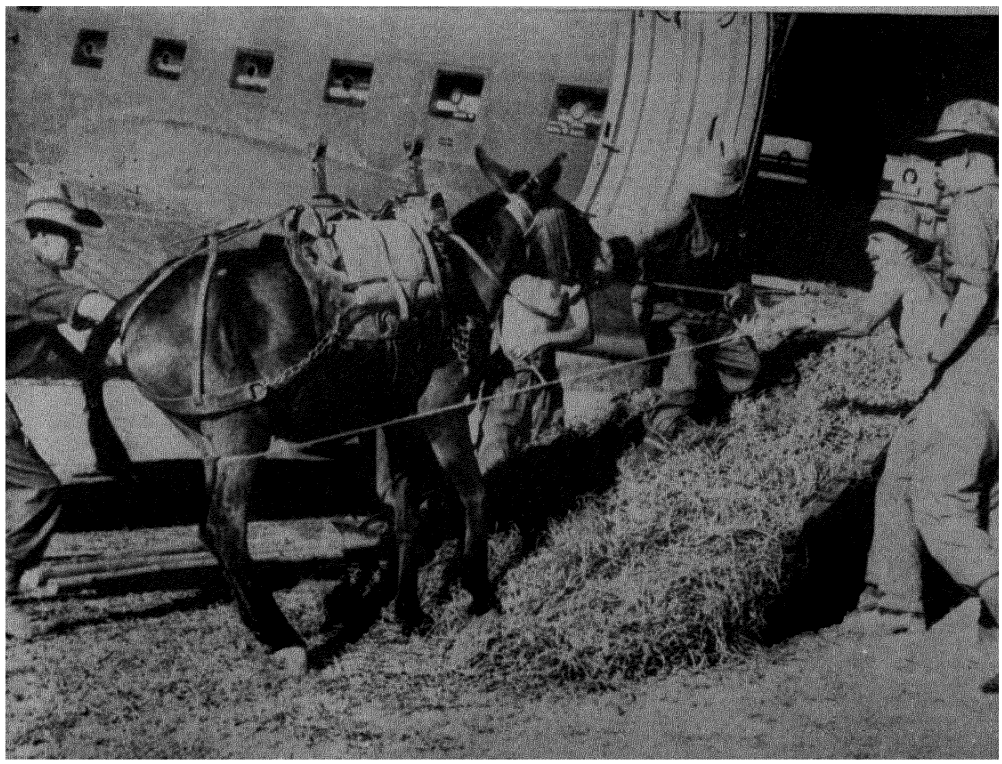
BUREAU OF STANDARDS, National. See STANDARDS, NATIONAL BUREAU OF.

BURKE, Thomas, English author: b. London, England, 1886; d. there, Sept. 22, 1945. Although Burke wrote poetry, literary criticism, and murder stories, he was best known for his stories of boyhood spent in the most squalid sections of London and his sketches of that city's Chinatown and its poverty-stricken inhabitants.

Burke sold his first short story when he was 16 years old, and for the next few years worked as assistant to a bookseller and in a literary agency. Publication of the short stories comprising *Limehouse Nights* in 1917 brought him fame and commissions from English and American editors which permitted him to devote all his time to literary work. *Limehouse Nights,* the author admitted, was "violent stuff, hastily written"; in certain quarters it was acclaimed as a penetrating study, while in others it was denounced as a falsely melodramatic picture of Limehouse life. In any case, it made the Limehouse area of London a famous tourist spot and provided D. W. Griffith with the story for his famous silent film, *Broken Blossoms.* Among Burke's other works are: poetry, *Verses* (1906), *London Lamps* (1917), *The Song Book of Quong Lee* (1920); fiction, *Whispering Windows, More Limehouse Nights* (1921), *Wind and the Rain* (1924), *Sun in Splendour* (1926), *East of Mansion House* (1926), *Flower of Life* (1929), *The Pleasantries of Old Quong* (1931), *Night Pieces* (1935), and *Murder at Elstree* (1936); and many books of essays.

BURMA. A British dependency in southeastern Asia. It was occupied by Japanese forces in 1942, and reconquered in 1944–45. The total area of 261,610 square miles comprises Burma proper (with the Chin Hills and Kachin Hill Tracts), 192,158 square miles; the Shan States, 62,335 square miles; and unadministered territory, 7,117 square miles. At the census in 1941 the population numbered 16,823,798, of whom about 85 per cent were Buddhists; besides Burmans, indigenous races were Karens, Shans, Chins, and Kachins, and there were also large communities of Chinese, Indo-Burmans, and Indians. Rangoon (pop. 498,369) is the capital, and other large cities are Mandalay (147,932) and Moulmein (65,506). Until April 1, 1937, Burma constituted a province of British India. Thereafter executive authority was exercised by a governor (Sir Reginald Hugh Dorman-Smith assumed office May 6, 1941), who was assisted by a Council of Ministers. Legislative authority was vested in a Senate of 36 members (18 nominated and 18 elected by the House of Representatives) and a House of Representatives of

BURMA



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A recalcitrant mule is forcibly loaded into a transport plane for his first air trip during operation of supplying First Air Commandos after their landing behind the Jap lines east of Imphal.



First convoy over the Ledo-Burma Road. Gen. Lewis A. Pick rides the first jeep of the convoy into China amid cheering crowds of American and Chinese at the border town of Wanting, China.

132 elected members; a ministry of Burmese, headed by a prime minister (Sir Paw Tun in 1942), was responsible to the legislature for conduct of domestic affairs in all of Burma except hill districts in the northern and eastern parts of the country. On May 17, 1945, the British government published a White Paper outlining a plan under which Burma is to attain full self-government within the British Commonwealth. The emergency wartime system of government, broadened by appointment of an Executive Council of Burmans to advise and assist the governor, is to continue until Dec. 9, 1948. As soon as conditions permit, a general election will be held and government under the constitution which came into effect in 1937 will be restored. Then the Burmese people are to draw up their own constitution, which should "take in account not only the British but the other various types of constitution in democratically governed countries." The British government would continue to administer the Shan States and the tribal areas of the mountainous fringes of the country until they signify a desire for amalgamation with Burma.

There were 8,270 recognized colleges and schools with an enrolment in 1940 of 639,259, and 18,745 unrecognized institutions with 212,663 pupils. In almost every village a Buddhist monastery provides primary education. The University of Rangoon, with two arts colleges, was founded in 1920, a medical college and a teachers' training college being added later. There is also an intermediate college at Mandalay, a forest school at Pyinmana, an agricultural college and research institute and veterinary college at Insein. The ordinary revenue for 1941–42 totaled Rs 1,713 lakhs, while expenditures totaled Rs 1,828 lakhs. Chief agricultural products are rice, peanuts, corn, sesamum, cotton, beans, and tobacco. Cultivated area amounts to approximately 17,142,175 acres, of which 1,436,621 acres are irrigated. Rice is the principal export. The reserved forests cover 31,637 square miles, from which 307,997 tons of teakwood were taken in 1939–40. Mineral resources include petroleum, tin, tungsten ore, silver, rubies, jadestone, and wolfram. The output of petroleum in 1939 was 275,673,364 gallons. The tin output was 5,441 tons; tungsten ore, 4,342 tons. There are 1,019 factories employing 86,383 persons. Exports including re-exports, in 1940–41 had a value of Rs 55 crores 38 lakhs; imports Rs 29 crores 55 lakhs. There are 6,811 miles of surfaced roads and 5,661 of unsurfaced highways. The Irrawaddy is navigable for 900 miles, the Chindwin for 300 miles, and there are 60 miles of navigable canals. The railways, which are state owned, have a total length of 2,060 miles.

Reconquest in 1945.—Although the Japanese had been on the defensive since June 1944, only 10 per cent of the country had been regained by the end of the year. Early in 1945, however, disregarding previous practice of both combatants to suspend activities during the monsoon, Admiral Lord Louis Mountbatten opened a full-scale offensive, effecting numerous amphibious landings along the coast to parallel the advance of his Fourteenth Army through the jungles. Meanwhile, also, American engineers completed in January the road across the top of Burma into China, and this route, named for Gen. Joseph W. Stilwell, under whose auspices it had been built, greatly facilitated the supply of munitions to the armies of Chiang Kai-shek. The Chinese divisions serving under Mountbatten were then returned to their own country, the campaign continuing with British and Indian troops aided by mountain tribesmen fighting as guerrillas under British leadership. American and British air forces gave close support to the ground troops, for long supplied entirely by air, attacking the enemy with such success that not one Japanese aircraft remained in Burma by May 1945. Besides men and supplies, mules, so essential for keeping supply lines open, were also airborne, those successfully completing drops wearing parachutist's wings on the brow band of their head collars; they were reported to have "enjoyed the trip," though the manner in which they expressed their pleasure was not indicated. On February 26, Pagan, the ancient town in the heart of the Burmese oilfields, was captured, and on March 9 the British soldiers came back to Mandalay. By the beginning of April, the Japanese Fifteenth Army had been virtually destroyed, and the Twenty-eighth, constantly on the retreat, was forced to yield Rangoon to Mountbatten's victorious men on May 3. After capture of the capital, the units of the United States Air Forces were transferred to China, air operations being continued by the British, Indian, Canadian, and South African personnel. At this stage Mountbatten was allotted an additional army, the Twelfth, thousands of the troops having been flown from England on a journey which took, including two 48-hour rest periods en route, seven days. At the height of the Japanese advance in 1942, some 4,000 of Burma's 17,000,000 people were co-operating with the enemy, who organized a so-termed "Burma National Army." British officers were parachuted into the country and lived with these Japanese-equipped troops in enemy-held territory after the fall of Mandalay, by which time the Burmans had become thoroughly disillusioned. Having received the good wishes of the Japanese at a farewell parade before "departing to defend Burma," the Burma National Army marched out and promptly took up positions alongside the British. Restyled the "Patriot Burmese Forces," the men, commanded by their own Japanese-trained officers, helped to drive the enemy from the Irrawaddy area and continued to serve loyally until the end of the campaign. In Burma, the Japanese suffered their worst defeat on the continent of Asia in this or any war. With their forces decimated by battle and disease, with their supply lines as far back as Bangkok hopelessly disrupted by constant air attack, after they lost Rangoon the Japanese attempted to fight their way back into Siam (Thailand). Several thousand of them were killed attempting to escape eastward across the Sittang River, and only cessation of hostilities in August saved the Japanese forces from complete annihilation. Formal surrender of Burma to the British Twelfth Army was signed by General Ichida at Rangoon at 12:15 P.M. on Sept. 13, 1945. Brigadier E. F. E. Armstrong took the surrender on behalf of Lieut. Gen. Sir Montague Stopford, commander of the Twelfth Army. Ichida represented Field Marshal Count Juichi Terauchi, supreme commander of the Japanese southern armies. In the course of the campaign 128,000 Japanese killed in battle were buried by the Allies, who also took 3,000 prisoners, while great numbers behind the enemy lines were killed by air power or died from disease or starvation; Allied losses in killed and missing amounted to 20,000.

BURNS. See SURGERY, PROGRESS IN.

BURROUGH, Sir Harold Martin, British Naval officer: b. July 4, 1888. In January 1945, Vice Admiral Burrough succeeded the late Admiral Sir Bertram Home Ramsay as naval commander in chief of Allied Expeditionary Forces under General Eisenhower. He had previously served as flag officer commanding the Gibraltar area, 1943–45. In November 1942, he directed Allied naval operations at Algiers. Admiral Burrough was educated at St. Edwards, Oxford, and trained aboard H.M.S. *Britannia*. In the First World War, he saw action at the Battle of Jutland as gunnery officer of H.M.S. *Southampton*. From 1930–32, he commanded H.M.S. *London;* from 1935–37, the 5th Destroyer Flotilla; and 1937–38, H.M.S. *Excellent*. He was with the British Admiralty from 1939–40 as assistant chief of the naval staff; in September of the latter year, he assumed command of a cruiser squadron in the Home Fleet. He was promoted vice admiral in 1943. In early May 1945, he was present at the signing of Allied terms of German surrender at Reims, France.

BURTON, Harold Hitz, United States Supreme Court justice: b. Jamaica Plain, Mass., June 22, 1888. Senator Burton was named justice of the United States Supreme Court on Sept. 18, 1945, to succeed Justice Owen J. Roberts, retired. Senator from Ohio from January 1941 until he assumed his Supreme Court duties, the 57-year-old Republican was a prominent member of the senatorial war investigating body which began its work as the Truman Committee. In March 1943, with Senators Ball, Hatch, and Hill, he brought out the famous B2-H2 resolution for international co-operation, designed to show the other United Nations that the United States Senate did not stand for isolationism. In February 1945, he fought for Senate approval of the Vandenburg plan for an Allied treaty to demilitarize Germany and Japan. He had but recently returned from the Mediterranean theater where he had helped conduct an inquiry into expenditures in North Africa and the Near East, as member of a subcommittee. In June 1945, Mr. Burton encountered bitter opposition from American labor groups when he joined Senators Hatch and Ball in introducing the Wagner Law revision bill, which called for liquidation of the National Labor Relations Board and the substitution of machinery to avert the "serious danger of a knock-down, drag-out fight between management and labor" in the postwar period of adjustment.

Although his political career has had its roots in Ohio, Mr. Burton is a New Englander by birth. His father was dean at the Massachusetts Institute of Technology and a member of the faculty for 40 years. Young Burton grew up in Newton, Mass., later attended Bowdoin College (A. B., 1909) and Harvard Law School. He was a corporation lawyer in the West, and in Cleveland, until he entered Ohio politics in 1929 as a member of the state's House of Representatives. He was director of law for the City of Cleveland, 1929–32; the city's acting mayor, Nov. 9, 1931–Feb. 20, 1932; and its mayor from 1935 to 1940. He entered the United States Senate in January 1941. In the First World War, he was first lieutenant, later captain of the infantry, and served in France and Belgium, 1918–19. He was awarded the Purple Heart and the Croix de Guerre. He edited *600 Days' Service—A History of the 361st Infantry Regiment, U. S. Army* (1919).

BUSH, Vannevar, American scientist and electrical engineer: b. Everett, Mass., March 11, 1890. Dr. Bush figured prominently in the development of the atomic bomb, which saw its first use against the Japanese city of Hiroshima on Aug. 6, 1945, and contributed materially toward hastening the end of the Pacific war. Research begun by the government in late 1939 to investigate the use of atomic energy for military purposes was, by June 1940, being conducted under the direction of Dr. Bush, then director of the newly created National Defense Research Committee. (NDRC represented the first organized civilian attack on problems of research and development related to the war effort.) In 1941, his committee was absorbed by the new Office of Scientific Research and Development, and he was named OSRD director. In June 1942, OSRD's vastly expanded atomic research program was taken over by the War Department. Dr. Bush has also been chairman of the Joint Committee on New Weapons and Equipment of the Joint United States Chiefs of Staff since 1942, a unique post for a civilian to hold.

Dr. Bush has been president of the Carnegie Institution of Washington since 1939. In that same year, he was named chairman of the National Advisory Committee for Aeronautics; he resigned this position in July 1941 to devote his full time to the Office of Scientific Research and Development. Dr. Bush took his engineering degrees at Massachusetts Institute of Technology and Harvard University. In the First World War, he did research for the navy on submarine detection. From 1919–32, he was associate professor of electric power transmission, later full professor, at MIT; from 1932 to 1938, vice president and dean of engineering. Dr. Bush collaborated with Dr. Samuel H. Caldwell, chief of MIT's Analysis Center, in designing the differential analyzer for solving differential equations. This mathematical, electronic robot was extensively used by the United States Army and Navy in the Second World War to compute gun range tables and to solve difficult problems in fire control and radar-antenna design. With W. H. Trimble, Dr. Bush has written two technical books: *Principles of .Electrical Engineering* (1923) and *Operational Circuit Analysis* (1929). In April 1945, he was one of six American scientists in whose honor the 1945 American Design Award and $25,000 were given to the National Academy of Design. In July, he suggested in a letter to the White House that Congress establish a National Research Foundation to promote a national policy for scientific research and education.

BYRNES, James Francis, United States Cabinet official: b. Charleston, S.C., 1879. On June 30, 1945, Mr. Byrnes was appointed secretary of state to succeed Edward R. Stettinius in the Truman Cabinet; was unanimously confirmed by the Senate on July 2; and took office on July 3. Mr. Byrnes was one of the late President Franklin D. Roosevelt's principal advisers, and accompanied Mr. Roosevelt to Yalta for his final conference with Marshal Stalin and Prime Minister Churchill. He and Mr. Roosevelt became friends during the First World War, when Mr. Roosevelt was assistant secretary of the navy and Mr. Byrnes was a member of the House Appropriations Committee. Their friendship was renewed in 1933. A middle-of-the-road Southern Democrat, Mr. Byrnes at times differed with the late president on domestic policies. However, in the

early days of the Roosevelt administration, he helped to pilot through the Senate practically all the New Deal measures. He later took a prominent part in sponsoring the legislation repealing the neutrality act and providing lend-lease.

Mr. Byrnes was educated in the public schools of South Carolina. From 1900 until 1908, he was court reporter in his home state's Second Circuit Court, and during that period, studied law. He was admitted to the bar in 1903. From 1903–07, he was editor of the Aiken (S.C.) *Journal and Review*. From 1908–10, he was solicitor in the Second Circuit. Elected to Congress in 1911, he served as a member of the House until 1925, when he began the practice of law in Spartanburg, S.C. He was elected to the United States Senate in 1931. He left the Senate 10 years later to become an associate justice of the United States Supreme Court. In October 1942, he resigned from the court to accept appointment as economic stabilization director. He left that post in May of the next year to assume his duties as director of war mobilization. Mr. Byrnes was prominently mentioned for the vice presidential nomination in 1940, and again in 1944.

Mr. Byrnes accompanied President Truman to the Potsdam Conference, July 17–Aug. 2, 1945, and in September attended the meeting in London of the Council of Foreign Ministers. He holds the Distinguished Service Medal, awarded him by President Truman for his two and one half years service as war mobilization director.

C

CADET NURSE CORPS. See PUBLIC HEALTH SERVICE, UNITED STATES.

CAICOS ISLANDS. See JAMAICA.

CALDER, Alexander Stirling, American sculptor: b. Philadelphia, Pa., Jan. 11, 1870; d. New York, N.Y., Jan. 6, 1945. A member of the National Academy, Mr. Calder had executed many works for monuments and public buildings in leading American cities. Mr. Calder studied at the Pennsylvania Academy of Fine Arts and in Paris. Among his many works are the two groups of statuary for the pedestals on the northern front of the Washington Arch in New York City; the Fairmount Park marble sun dial, the Swann Memorial Fountain, and the Shakespeare Memorial in Philadelphia; and a statue of Leif Ericson, presented by the United States to Iceland on the 1,000th anniversary of the Althing in 1932. His works received many prizes, and are included in the permanent collections of the Pennsylvania Academy of Fine Arts, the Smithsonian Institution in Washington, D.C., the Metropolitan Museum, and the Museum of Modern Art in New York City, as well as other important museums. Mr. Calder served as acting chief of sculpture at the Panama-Pacific Exposition, San Francisco, in 1915, and taught at the National Academy of Design and the Art Students League in New York City. He was elected to the National Institute of Arts and Letters in 1916, and became sculptor member of the Fine Arts Commission of New York City in 1937.

CALIFORNIA, Pacific state, United States; admitted to the Union Sept. 9, 1850. Population (1940): rural, 2,005,122; urban, 4,902,265; total, 6,907,387. Land area, 156,803 square miles, divided into 58 counties. Principal cities with 1940 populations: Los Angeles, 1,504,277; San Francisco, 634,536; Oakland, 302,163; San Diego, 203,341; Long Beach, 164,271; Sacramento, the capital, 105,958.

Chief State Officers, 1945.—Governor, Earl Warren; lieutenant governor, Frederick F. Houser; secretary of state, Frank M. Jordan; treasurer, Charles G. Johnson; comptroller, Harry B. Riley; attorney general, Robert W. Kenny.

Judiciary.—Chief justice of California's Supreme Court, Phil S. Gibson; associate justices, John W. Shenk, Homer R. Spence, Douglas L. Edmonds, Jesse W. Carter, Roger J. Traynor, B. Rey Schauer.

Legislature.—The state legislature (Senate, 40 members; Assembly, 80) meets biennially in odd years on the first Monday after the first day of January.

Education.—Schools maintaining kindergartens (1943–44),[1] 1,197; enrolment, 91,685. Elementary schools, 3,615; enrolment in regular classes, 756,855; in classes for the physically handicapped, 5,399; in special day and evening classes, 2,111. High schools, 585; evening high schools, 97; enrolment in regular classes, 437,510; in classes for the physically handicapped, 3,157; in special day and evening classes, 535,709. Junior colleges, 44; evening junior colleges, 14; enrolment in regular classes, 24,841; in classes for the physically handicapped, 5; in special day and evening classes, 88,659. There are 7 teacher training schools in the state. Total state appropriation to districts and counties for education (1943–44), $79,325,290.60. State superintendent of public instruction, Walter F. Dexter. Education in California is compulsory for children between the ages of 8 and 16, full time; between the ages of 16 and 18, part time, unless a high school graduate.

Finances.—Following is a statement of California's finances for the fiscal year 1943–44[2], supplied by the state treasurer's office:

Balance in treasury, beginning of fiscal year July 1, 1943–June 30, 1944	$ 115,586,005.13
Receipts, 1943–44	1,211,587,581.42
Total	$1,327,173,586.55
Disbursements, 1943–44	1,164,132,910.21
Balance, June 30, 1944	$ 163,040,676.34

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the table on following page.

[1] Latest school year reported
[2] Latest fiscal year reported.

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	2,458	2,211	2,278
Oats (1,000 bu.)	4,376	5,310	5,115
Wheat (1,000 bu.)	13,623	10,393	10,317
Barley (1,000 bu.)	32,754	40,012	40,122
Sorghums for grain (1,000 bu.)	4,592	3,920	3,737
Flaxseed (1,000 bu.)	1,878	2,788	1,808
Rice (1,000 bu.)	9,656	14,400	16,884
Sugar beets (1,000 short tons)	1,991	1,197	1,615
Cotton (1,000 bales)	424	327	396
Hay:			
Alfalfa (1,000 tons)	3,304	4,106	4,213
Tame (1,000 tons)	4,607	5,393	5,686
Walnuts (tons)	53,320	62,000	62,000
Sweet potatoes (1,000 bu.)	1,299	1,200	1,080
Beans, dry edible (1,000 bags)	4,634	3,843	3,967
Potatoes (1,000 bu.)	18,787	33,250	37,365
Apples (1,000 bu.)	7,607	6,144	9,240
Peaches (1,000 bu.)	23,389	34,044	31,795
Pears (1,000 bu.)	9,951	10,417	13,210
Grapes (tons)	2,256,700	2,514,000	2,714,000
Oranges (1,000 boxes)*	43,866	60,323	.....
Grapefruit (1,000 boxes)	2,337	3,505	.....
Lemons (1,000 boxes)	11,339	12,300	.....
Figs (tons)	42,000	54,200	.....
Olives (tons)	41,100	42,000	.....

* No estimates given for 1945 citrus crops, as harvest did not begin until October.

CALLES, Plutarco Elías, Mexican politician: b. near Guaymas, Sonora, Mexico, Sept. 25, 1877; d. Mexico City, Oct. 19, 1945. The dominating figure in the Mexican political scene from 1924 until his break with former President Cárdenas in 1935, General Calles had served as president of Mexico from 1924 until 1928. Born of poor parents, General Calles was educated at the Colegio de Don Benigno López y Sierra, taught in the schools of Guaymas and Hermosillo, and was made a professor at the Colegio de la Moneda. He joined the revolutionary forces of Madero in 1910, and after President Díaz was overthrown, became a colonel in 1913 and a general the next year. In 1915 he was appointed provisional governor and military commander of the state of Sonora, becoming constitutional governor in 1918. The next year he was made secretary of industry, commerce, and labor, and when Gen. Alvaro Obregón was elected president in 1920, he was appointed secretary of the interior. As president, General Calles continued to carry out the agrarian and educational reforms initiated in 1917. During his administration there was a long and serious controversy with the United States regarding the application of the 1917 constitution to foreign land and oil properties, but an adjustment was finally reached in 1927 by Dwight W. Morrow, United States ambassador to Mexico. Early in 1926 the clergy took a positive stand against the unenforced religious and educational provisions of the 1917 constitution, which precipitated a bitter conflict between church and state. The government ordered the nationalization of church property and began to close church schools, while the clergy suspended religious ceremonies requiring the services of priests. In 1927 the religious revolt known as the Cristeros revolution broke out in several provinces, but General Calles succeeded in quelling this civil war. Although General Obregón (July 1–July 17, 1928), Emilio Portes Gil (1928–30), Pascual Ortiz Rubio (1930–32), and Gen. Abelardo Rodríguez (1932–34) succeeded him as president, General Calles remained the real power in the government. In March 1929, he took over command of the federal forces and broke the revolt headed by Gen. Gonzalo Escobar. He was appointed minister of war in 1931, and minister of finance in 1933. At the insistence of Left wing elements, he instituted the Six-Year Plan of social legislation and economic development in 1933. He supported Gen. Lázaro Cárdenas for president in 1934, but soon after Cárdenas was elected, General Calles began to criticize his regime, and Cárdenas retaliated by purging the government of Calles' allies. On April 11, 1936, General Calles was arrested by order of President Cárdenas and deported to the United States. After the election of President Ávila Camacho, General Calles returned to Mexico on May 5, 1941, and a year later resumed his post in the army.

CAMBODIA. See FRENCH INDO-CHINA.

CAMEROONS. A British mandated territory in West Africa; with Cameroun (q.v.), it formed the greater part of the former German colony of Kamerun, which was constituted mandate territory of the League of Nations in 1922. (That part of Kamerun, 107,270 square miles, which France had ceded to Germany in 1911, was reabsorbed into French Equatorial Africa.)

The British Cameroons (area 34,081 square miles; pop., 1939, 868,637) lies along the eastern border of Nigeria, and is administered by the government of that country: the southern portion, known as the Cameroons Province, as one of the Eastern Provinces of Nigeria; and the northern part (geographically separated) with the Bornu, Benue, and Adamawa provinces of the Northern Provinces. Since 1942 the Cameroons has had a representative in the Legislative Council of Nigeria. The principal exports are palm oil and kernels, cocoa, rubber, and coconuts; and the chief imports are textiles, petroleum products, and cement. For statistical purposes, the Cameroons is treated as part of Nigeria (see BRITISH WEST AFRICA). Buea and Victoria are the ports of entry. A motor road was constructed between Victoria and Bamenda in 1944. At Bamenda, an administrative center in the interior, a native woman found in 1945, 16 bars of gold buried in her garden, supposedly hidden there during the First World War by Germans prior to evacuating the town.

CAMEROUN. A French mandated territory in West Africa, situated between the British mandate Cameroons (q.v.) and French Equatorial Africa; area, 164,097 square miles, population, 2,780,000, of whom more than 3,000 are whites. Administratively and financially Cameroun is autonomous, a high commissioner, with the status of governor, being assisted by an Administrative Council. Yaoundé, or Yaundé, is the capital, and Douala the principal port. The government conducts (1944) 110 schools with 29,000 pupils; there are agricultural and technical schools at Douala, and at Yaoundé are a high school and a school of medicine. State aid is given to 42 French mission schools and 157 foreign mission schools; the latter include schools of the American Presbyterian and Seventh Day Adventist missions. Palm oil is a staple of native diet, and the natives cultivate bananas, cassava, sweet potatoes, and sesame. There are plantations of rubber (3,000 tons in 1944), coffee (8,565 tons in 1943), and cacao (25,000 tons annually). During the war practically all export crops were purchased by the British government. Titanium (rutile) is the principal mineral exported (3,000 tons in 1943); tin, copper, gold, and molybdenite are also mined, and zinc, lead, columbite, tantalite, and wolfram have been located. During the first six months of 1944, 72,900 metric tons of prod-

ucts, valued at 353 million francs, were exported, and 29,400 tons of merchandise, valued at 272 million francs, were imported. Railroads aggregate 309 miles in length; the main line, from Douala to Yaoundé, is to be extended northward to Fort Lamy, near Lake Tchad (Chad). There are 2,700 miles of highways suitable for motor traffic at all seasons of the year, and 900 miles of dry-weather roads; a new road is under construction to link up with the All-Africa Highway, from the Cape of Good Hope to Algiers.

CAMP FIRE GIRLS, Inc. Founded by Dr. and Mrs. Luther Halsey Gulick, incorporated in 1912, the Camp Fire Girls is a character-building organization of over 350,000 girls. Types of membership include the Blue Birds (ages 7-10); Camp Fire Girls (ages 10-14); and Horizon Club Girls (girls in senior high school and junior college). The major activity of 1944–45 was the Hi, Neighbor! project, an adventure in neighborliness. During the Sixth War Loan drive, Camp Fire Girls sold $2,437,500 worth of bonds—enough to purchase 1,250 field ambulances. As victory approached and the needs of countries already liberated became urgent, they devoted much of their time to work with various relief agencies, collecting clothing, books, toys, sewing supplies, and other necessities for children in China, England, Russia, and other Allied countries. Over 40,000 girls attended Camp Fire camps, filling them to capacity. The annual meeting was held Jan. 14-20, 1945, in New York City. The organization publishes *The Camp Fire Girl,* a monthly magazine (except for July and August); *Handbook for Guardians of Camp Fire Girls; The Book of the Camp Fire Girls; The Blue Birds Book; Horizon Club Program Book,* and other material.

Officers of the Camp Fire Girls, Inc., are: president, Dr. Bernice Baxter; executive secretary, Martha F. Allen. National headquarters: 88 Lexington Ave., New York 16.

CANADA, Dominion of. A self-governing state of the British Commonwealth of Nations, comprising the entire northern half of the North American continent, with the exception of the Territory of Alaska, which belongs to the United States, and Labrador, a dependency of Newfoundland. The present land area is 3,466,556 square miles and the population (1941 census) 11,506,655 (of whom 5,900,536 were male; 5,606,119 female). Executive power is vested in a governor general, appointed by the king on the advice of the Canadian ministry, and aided by a Privy Council. The Earl of Athlone was governor general in 1945, and William Lyon Mackenzie King was prime minister. Legislative authority is exercised by a Parliament consisting of a Senate of 96 members, nominated for life, and a House of Commons elected every five years, or less in the case of a dissolution by the ministry, the province of Quebec always having 65 members and the other provinces proportional numbers, according to their populations at each decennial census. The 19th Parliament, elected March 26, 1940, was composed of 245 members; the 20th Parliament, elected June 11, 1945, should have had 238, but the redistribution clause in the British North America Act to this effect had been suspended. The Dominion is composed of nine provinces, each having a separate legislature with a lieutenant governor, and the Northwest Territories and the Yukon Territory, governed by commissioners assisted by councils. See also under each province.

Population.—The population of Canada, at the censuses of 1941 and 1931, by provinces, was as follows:

Province	1941 Census	1931 Census
Prince Edward Island	95,047	88,038
Nova Scotia	577,962	512,846
New Brunswick	457,401	408,219
Quebec	3,331,882	2,874,774
Ontario	3,787,655	3,431,683
Manitoba	729,744	700,139
Saskatchewan	895,992	921,785
Alberta	796,169	731,605
British Columbia	817,861	694,263
Yukon	4,914	4,230
Northwest Territories	12,028	9,204

The leading cities are Montreal (pop. 903,007), Toronto (667,457), Vancouver (275,353), Winnipeg (221,960), Hamilton (166,337), Quebec (150,757), Edmonton (93,817), Ottawa (154,951), Calgary (88,904), and Windsor (105,311).

In 1942 live births totaled 272,313, or a rate of 23.4 per 1,000 population. In the same year, deaths from all causes totaled 112,978, or 9.7 per 1,000. Immigrants, during the fiscal year ended March 31, 1943, numbered 7,445, of whom 2,418 were from the United Kingdom, 4,827 from the United States, and 200 from other countries.

Education.—Enrolment in educational institutions in 1941 totaled 2,447,528, of which 2,082,487, were enrolled in the ordinary and technical day schools controlled by the provinces. A total of 93,944 were enrolled in evening schools, 23,568 in correspondence courses, 5,088 in special schools (schools for the blind, deaf, or mentally defective), and 6,468 in normal schools. Privately controlled schools had 89,798 enrolled in ordinary day schools, and 19,356 in business training schools. There were 17,425 enrolled in Dominion Indian schools. Preparatory courses for university and college had 19,885 pupils, 48,835 were enrolled in standard university courses, and 40,674 were taking other courses at the universities.

Religion.—The census of 1941 reported the population according to religious affiliation as follows: Roman Catholics, 4,800,895; United Church, 2,204,875; Anglicans, 1,751,188; Presbyterians, 829,147; Baptists, 483,592; Lutherans, 401,153; Greek Catholics, 185,657; Jews, 168,367; Greek Orthodox, 139,629; others, and religion not stated, 542,152; total population, 11,506,655.

Population Trends.—According to the 1941 census, the total population of 11,506,655 falls into three main groups:

Anglo-Saxons ..... 5,715,904 or 49.7 per cent.
French ..... 3,483,038 or 30.3 per cent.
Others, chiefly European ..... 2,307,713 or 20.0 per cent.

These figures, however, give only part of the picture, for populations are not static and it is important to consider the trend of group statistics as well as their quantity at a given moment. Whereas the Anglo-Saxons constituted 60.55 per cent of Canada's population at the first federal census in 1871, they have now dropped to 49.7 per cent, and, that, in spite of the immigration of millions from the British Isles. The French, who were 31.07 per cent in 1871, are now 30.3 per cent, but have increased absolutely from 1,000,000 to 3,500,000 in 70 years without the aid of immigration. The "other groups" have risen, largely through immigration, from 8.39 per cent to 20 per cent, although most of the people in these newer communities are now Canadian-born. The Anglo-Saxons have become an actual minority in Canada.

Nor is this all. The Anglo-Saxons, who in 1931 constituted 52 per cent of the population, have for the past 15 years been contributing less than 40 per cent of the annual births in the country. In other words, only about 40 per cent of the Canadian children of school age are of Anglo-Saxon origin, and their adult generation will be correspondingly diminished. If such trends continue, a century hence will see them at perhaps 25 per cent of Canada's population. This trend towards group extinction is due simply and solely to the failure of the Anglo-Canadians to maintain a survival birth rate.

Economic Conditions and Finances.—The level of economic activity remained high during the early months of 1945, but the end of the war in Europe brought the apparent beginning of a drop in employment, preparatory to a period of reconversion. The seasonally adjusted index of employment for the first five months averaged 185.6 (1926 = 100), while June 1 showed a recession to 175.3. The drop was not uniform, however, for rubber products, textiles, printing and wholesale and retail trade remained steady, while electrical apparatus fell from 315.8 in January to 290.7 in June; iron and steel products fell from 315.9 to 273.4; and construction and maintenance from 119.6 to 103.2. By economic areas, the drop in employment was most marked in Ontario and Quebec, where the structure of war industry had shown the most phenomenal expansion. It is significant that the employment index in Windsor had reached 289.7, while that in Winnipeg had not gone beyond 151.3.

A striking feature of the first seven months of 1945 was the increase in the new business obtained by the construction industry. The Dominion-wide total for the period was $226,200,000, an increase of 22.2 per cent over the same period in the preceding year. Supply of basic materials continued to be a problem during July, and manufacturers reported continued difficulty in obtaining adequate labor. During the month of July, the Department of Labour announced a scheme whereby men with two years' experience in the building or allied trades would be eligible for discharge from the armed services. The increased volume of construction had outstripped the supply of materials and skilled labor.

The total value of building permits issued by all municipalities during the first seven months was $99,300,000, an increase of 29 per cent. The value of permits in 58 municipalities for the same period was $70,900,000, while the value in the corresponding portion of 1944 was $57,300,000. During the month of July, new construction of all types amounted to 78.4 per cent of all permits, while the percentage of new residential homes was 53.8 per cent. The permits issued in the first seven months of 1945 were greater than in any similar period since 1930.

Governmental controls over the cost of living held comparatively firm. With rents pegged and most commodities under a ceiling, the only real change lay in a slight seasonal fluctuation in the price of fresh vegetables and fruit. The cost of living index averaged 118.85 for the first six months of 1945 as compared with 119 for the corresponding period in 1944.

Deposit liabilities of the Canadian banks continued to increase. At the beginning of June 1945, total deposits were $6,375,100,000, as against $4,200,000,000 in June 1943 and $3,100,000,000 in June 1942. Total bank assets were recorded at $6,894,900,000, and total public note circulation at $934,300,000, an increase of 380.9 per cent over the average of the period 1935–39.

Finance.—The ordinary expenditures of the Dominion government rose from $240,000,000 for the first four months of the fiscal year ended July 31, 1944, to $302,200,000 during the same period of 1945. The total special expenditures on the other hand showed a decline from $1,193,000,000 to $1,161,000,000. War expenditures receded in the same comparison from $951,000,000 to $664,000,000, while Mutual Aid showed an increase from $240,000,000 to $496,000,000. The Mutual Aid payments in the first four months of the previous fiscal year did not include disbursements of $298,764,859, representing temporary advances to the Canadian Mutual Aid Board. The total cost of the war was announced as having been about $17,000,000,000 up to mid-August 1945.

At the close of September, Finance Minister Ilsley forecast total expenditures of $4,000,000,000 for the year following the Ninth Victory Loan (opened October 22d) and more than $5,000,000,000 for the fiscal year ending March 31, 1946. He explained also that the Victory Loan, with a goal of $1,500,000,000, would cover the government's borrowing requirements for a one-year period, and that there would be no loan in the spring of 1946. Previous loans had been launched at approximately six-month intervals. Of the $4,000,000,000 which he forecast for the ensuing twelvemonth, about 30 per cent, or about $1,200,000,000 would be for normal and continuing expenses. The balance would include the cost of demobilization and rehabilitation of servicemen, the cost of armies of occupation, and other postwar military expenditures and some cost of postwar reconversion. It would also include the amount to be voted under the new Export Credits Act, for loans to other countries, an amount which Mr. Ilsley described as "hundreds of millions."

"These are formidable figures," said Mr. Ilsley. "They show that the scale of our financial operations remains at the high levels achieved during the war. They make clear that the task of the Minister of Finance is still a difficult one. On the other hand, they mask to some extent the decline—the rapid decline—that is already occurring in the government's demands on the goods and services of the community."

Labor and Social Security.—From the peak of 1,916,688 registered employed in December 1943, the Canadian total sagged to 1,856,871 in June 1945. The weekly payroll remained fairly stable during these early months of the year, however, being $60,504,000 in May 1945, as against $60,069,000 in May 1944. Until mid-summer 1945, strikes were almost nonexistent. The number of employees involved, in June 1945, for example, was only 2,773, with a time loss of less than two days per man. This halcyon weather was suddenly followed by a tornado of strikes, many of them, like that of the Canada Packers' employees in August, being wildcat strikes by large groups of supposedly organized labor over whom their own union officials seemed to have lost all effective control. Still other strikes bore the aggressive pattern of some of the large industrial unions in the United States, demanding "52 for 40 or we fight", i.e., asking for the same wages for a reduced working week of 40 hours as had been paid in wartime for 52 hours, and this regardless of whether the cost structure of industry could bear the extra burden or not. The result of these outbreaks was the paradox of considerable unemployment and disruption of business at a time

when everything seemed set for the large scale production of peacetime commodities and when the available jobs were still in excess of the available labor.

Agriculture.—Cash income from the sale of farm products in Canada for the first half of 1945 was $702,000,000, or about $62,000,000 less than for the same period of 1944. The decrease was accounted for by lower levels in the three Prairie provinces and by a minor recession in Nova Scotia. The largest decrease occurred in Saskatchewan, followed by substantial decreases in Alberta and Manitoba. These declines were offset in part by increases in other provinces, which in Ontario amounted to nearly $23,000,000, with the remainder of the provinces showing minor increases. Income in the Prairie provinces was down chiefly because of reductions in the marketing of wheat and hogs during the first half of 1945 as compared with unusually heavy marketings during the first six months of 1944. Prospects of seriously reduced crops indicated that the marketings for the last six months would be gravely lower than during the last half of 1944. Wheat marketings in the Prairie provinces during the period August 1, 1945 to August 16 were only 695,000 bushels, as compared with deliveries of 4,044,000 bushels during the corresponding period of 1944. The visible supply of wheat on August 16 was placed at 209,000,000 bushels compared with 296,000,000 bushels on the same date in 1944. For most products, 1945 proved a very poor year; for some it was calamitous. A bad spring cut down the crop of almost all fruits by from 50 to 80 per cent. Ontario's orchard crops were almost negligible, and the very small peach crop was further damaged by the Oriental fly. In Western Canada too, a long stretch of cold, wet weather in the late summer was disastrous in its effect on the grain harvest. Market garden crops were also seriously damaged, both in the East and in the West.

The index of cold storage holdings on August 1 was 141.5 against 155.6 one month before. The standing on the same date in 1944 was 187.1. The actual cold storage holdings, in pounds or dozens, were as follows:

Commodity	Aug. 1, 1944	Aug. 1, 1945
Creamery butter	52,962,000	55,226,000
Dairy butter	114,000	114,000
Cheese	60,772,000	66,373,000
Concentrated whole milk	40,853,000	51,914,000
Cold storage eggs	14,534,000	17,075,000
Fresh eggs	3,810,000	2,829,000
Frozen eggs	42,735,000	29,875,000
Poultry, dressed	10,077,000	5,953,000
Pork, grand total	60,179,000	28,233,000
Lard	17,726,000	1,740,000
Beef, grand total	20,341,000	13,933,000
Veal	6,391,000	5,641,000
Mutton and lamb	2,078,000	1,150,000

Forestry.—Operations in the Canadian newsprint industry during July were at the highest level for any month in over three years. The output was 270,640 tons as against 266,417 in June. The index advanced from 104.7 to 105.6. The outward shipment of planks and boards rose from 168,000,000 board feet to 182,000,000; while declines were shown, after seasonal adjustment, in the export of wood pulp and shingles. Timber scaled in British Columbia, in the last month for which figures are available, was 297,000,000 board feet, as against 274,000,000 in the same month of 1944.

Fisheries.—The pack of British Columbia salmon amounted to 910,804 cases up to August 18, 1945, which was the largest amount for the same period in the past six years. The increase in the pack over the deliveries of one year earlier was about 50 per cent. Frozen fresh fish in storage on August 1, 1945 was 30,535,000 pounds as against 32,747,000 the year before; and the storage total of frozen smoked fish was 1,948,000 as against 2,230,000 pounds.

Mining.—The index of mineral production receded from 174.6 in June to 168.7 in July. The output of coal declined from 1,271,000 tons to 1,078,000 tons; the index dropping from 127.7 to 113.4. The June production of other minerals, with the June 1944 figures for comparison, are as follows:

Mineral	June 1944	June 1945
Copper	23,874 tons	22,190 tons
Nickel	10,187 tons	11,322 tons
Lead	9,872 tons	12,588 tons
Zinc	19,880 tons	21,735 tons
Gold	239,900 oz.	212,200 oz.
Silver	1,160,000 oz.	1,099,500 oz.
Coke	328,000 tons	324,000 tons
Petroleum	824,500 bbls.	672,900 bbls.
Natural gas	2,827,000 M cu.	3,452,000 M cu.
Gypsum	46,000 tons	104,000 tons
Feldspar	2,345 tons	3,490 tons
Salt (commercial)	27,649 tons	29,518 tons
Cement	995,000 bbls.	1,041,000 bbls.
Lime	72,947 tons	72,361 tons

Electric Power.—Available hydroelectric power in Canada is estimated at 25,439,000 horsepower at minimum flow, at 39,511,700 horsepower for six months in the year, and even at 51,350,000 horsepower at peak turbine installation. The turbine installation on Jan. 1, 1944, was 10,034,513 horsepower, or only 19.54 per cent of the possible maximum. More than one half of the power now generated is generated in the province of Quebec. Electricity produced in Canada in July 1945 amounted to 3,285,000,000 kw.-hr. (kilowatt-hour), as compared with 3,412,000,000 kw.-hr. in the preceding month and with 3,419,000,000 kw.-hr. in July 1944. For the first seven months of 1945, production was recorded at 23,957,000,000 kw.-hr., as compared with 23,678,000,000 kw.-hr. in the same period of 1944.

Manufacturing.—Declines were shown in the index of manufacturing production in July compared with the preceding month. Plans were announced for the early cancellation of war contracts upon the official surrender of Japan. Wartime production of Canadian shipyards passed the five million mark, more than ten times the output in the First World War. Since 1939 more than 1,100 naval and merchant ships were launched by Canadian yards in a program that cost $1,000,000,000 and at its peak gave employment to 75,000 workers.

The index of tobacco was at a considerably lower level. Cigarettes available declined from 1,182,000,000 to 1,096,000,000.

Financing of new and used cars in the month of July showed a decline from the same period of 1944, with 2,554 cars for July 1945, financed to the extent of $1,311,000, as compared with the July 1944 figures of 3,182 cars financed for $1,385,856. This was a reduction of 20 per cent in the number of units and of 5 per cent in the amount financed.

Transport.—Statistics for Canada's railways show the maintenance of a very high level of activity:

All railways	June 1944	June 1945
Carloadings	315,000 cars	322,000 cars
Operating revenues	$67,010,000	$69,861,000
Operating expenses	$49,504,000	$52,478,000
Operating income	$12,577,000	$13,500,000
Tons carried	14,679,000	14,643,000
Number of ton-miles	5,457,000,000	5,919,000,000
Passengers carried	4,901,000	4,407,000
Total pay-roll	$29,109,000	$29,925,000
Number of employees	167,000	171,000

Over half of the railway mileage in Canada is owned and operated by the Dominion and provincial governments and the remainder by incorporated companies. The length of railways publicly operated is 23,600 miles; that operated by the incorporated companies is 18,739 miles.

Electric railways continue to be replaced by motorbuses, except in the larger cities. In centers where war industries are located, local passenger traffic has increased to unprecedented proportions, and peak loads have had to be spread out by staggering the working hours of factories and stores.

The Great Lakes and the St. Lawrence River form one of the busiest waterways in the world; and traffic through the canal at Sault Ste. Marie, Ontario, is greater than that through the Suez and Panama Canals combined. The total for this Ontario canal from July 1, 1944, to June 30, 1945, was 117,204,000 tons of cargo.

By declared government policy, Trans-Canada Air Lines are to be the sole transcontinental service and the sole Canadian agency in international air service. A number of lateral north-and-south independent lines have been consolidated in the Canadian Pacific Air Lines. The T.C.A. and the C.P.A., combined, carried around 211,000 passengers in 1943 and 6,100,000 pounds of mail. Whereas the T.C.A., however, carried 840,000 pounds of express, the C.P.A., serving especially the remote defense projects of the far northwest, carried over 9,000,000 pounds of heavy freight.

There are six telegraph systems in Canada, with over 380,000 miles of wires, and 3,209 telephone systems, with over 5,800,000 miles of wires. In addition to the nationally operated Canadian Broadcasting Corporation, there are, in the Canadian railway field, some 97 private commercial broadcasting stations.

Foreign Trade.—Canada's imports for the 12 months ended June 1945 totaled, exclusive of gold, $1,693,064,000, as compared with $1,759,921,000 during the previous twelve months. Of this, $1,356,403,000, or more than four fifths of the total, came from the United States. Next highest came the United Kingdom, with $122,551,000, or approximately 7.4 per cent of Canada's imports. Canada thus imports from the United States more than ten times as much as from any other country in the world. The United States is also Canada's best customer, since of Canada's export total of $3,412,083,000 for the same period, $1,281,764,000 (or 38 per cent) went to the United States and $1,161,051,000 (or 36 per cent) to the United Kingdom. A large proportion of the exports to the United Kingdom, moreover, consisted of Canada's "mutual aid" gifts to Britain, while the exports to the United States were all (like Canada's imports from the United States) cash transactions. The positive balance of world trade in Canada's favor during the twelvemonth in question was $1,766,528,000.

An analysis of Canada's exports for July 1945 will give some idea of the variety of the country's products:

(1) Agricultural products, total $82,623,000, including fruits $189,000, vegetables $1,034,000, grains $63,452,000 (including barley $2,084,000 and wheat $54,844,000), wheat flour $8,434,000, alcoholic beverages $1,534,000, and seeds $432,000.

(2) Animal products, total $31,656,000, including cattle $844,000, fishery products $8,452,000, furs $2,634,000, raw hides $40,000, unmanufactured leather $334,000, manufactured leather $319,000, meats $11,298,000, butter $126,000, cheese $1,919,000, eggs $3,092,000.

(3) Fibers and textiles, total $3,803,000, including cotton $704,000, flax $175,000, wool $996,000, and artificial silk $1,092,000.

(4) Wood and paper, total $43,207,000, including planks and board $9,147,000, square timber $102,000, red cedar shingles $644,000, pulpwood $2,641,000, wood pulp $9,403,000, newsprint paper $15,163,000.

(5) Iron and products, total $47,245,000, including pigs and ingots $1,559,000, rolling mill products $894,000, tubes and pipes $216,000, farm implements $1,978,000, hardware and cutlery $377,000, machinery other than farm $1,001,000, motor vehicles and parts $30,788,000.

(6) Nonferrous metals, excluding gold, $27,899,000.

(7) Nonmetallic minerals, total $5,918,000, including coal $335,000, petroleum $1,538,000, and stone $1,286,000.

(8) Chemicals, total $7,494,000, including acids $328,000, fertilizers $1,541,000, and soda compounds $568,000.

(9) Miscellaneous, including films, electrical energy, and certain military stores $33,939,000.

After the United States and the United Kingdom, Canada's twenty best customers next in order in July 1945 were as follows (with comparative figures for July 1944):

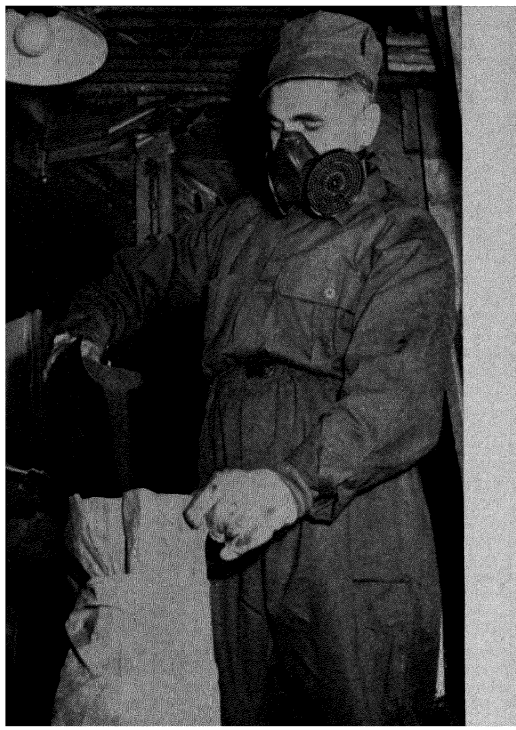
Country importing from Canada	July 1945	July 1944
British India	$36,772,000	$19,091,000
French Possessions	5,401,000	3,180,000
Greece	4,151,000	853,000
Italy	3,995,000	4,052,000
Newfoundland	3,698,000	4,077,000
British South Africa	3,023,000	2,648,000
Netherlands	2,981,000	.....
Australia	2,596,000	7,376,000
Brazil	2,559,000	699,000
Eire	2,293,000	1,529,000
New Zealand	2,244,000	239,000
Norway	2,147,000	.....
Switzerland	1,475,000	347,000
Jamaica	1,442,000	2,162,000
Egypt	1,387,000	9,047,000
Russia	1,183,000	10,429,000
Trinidad	1,132,000	1,440,000
Mexico	845,000	371,000
Portugal	813,000	126,000
Ceylon	673,000	803,000

Many purely wartime variations occur in these statistics. Norway and the Netherlands, for example, were under Nazi occupation in July 1944, and hence Canada had no trade with them. Or again, the large exports to Soviet Russia in July 1944 were almost wholly "mutual aid" gifts to Stalin, and the drop to the trade status of Trinidad in July 1945 represents a move in the direction of cash trade. There were apparently no imports into Canada from Russia during the year under review.

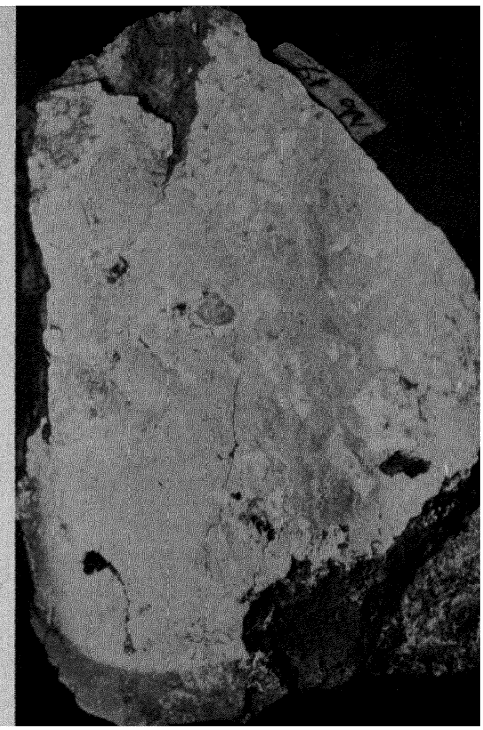
The twenty countries from whom, after the United States and the United Kingdom, Canada bought most in July 1945, were as follows (with comparative figures for July 1944):

Country exporting to Canada	July 1945	July 1944
Newfoundland	$3,345,000	$1,352,000
British India	2,342,000	2,629,000
Venezuela	1,712,000	1,682,000
British West Africa	1,640,000	384,000
British Guiana	1,477,000	1,078,000
Colombia	1,464,000	1,071,000
San Domingo	1,040,000	882,000
Jamaica	950,000	1,191,000
Australia	946,000	1,597,000
New Zealand	882,000	691,000
Cuba	803,000	315,000
Mexico	726,000	1,283,000
Brazil	710,000	673,000
Trinidad	709,000	106,000

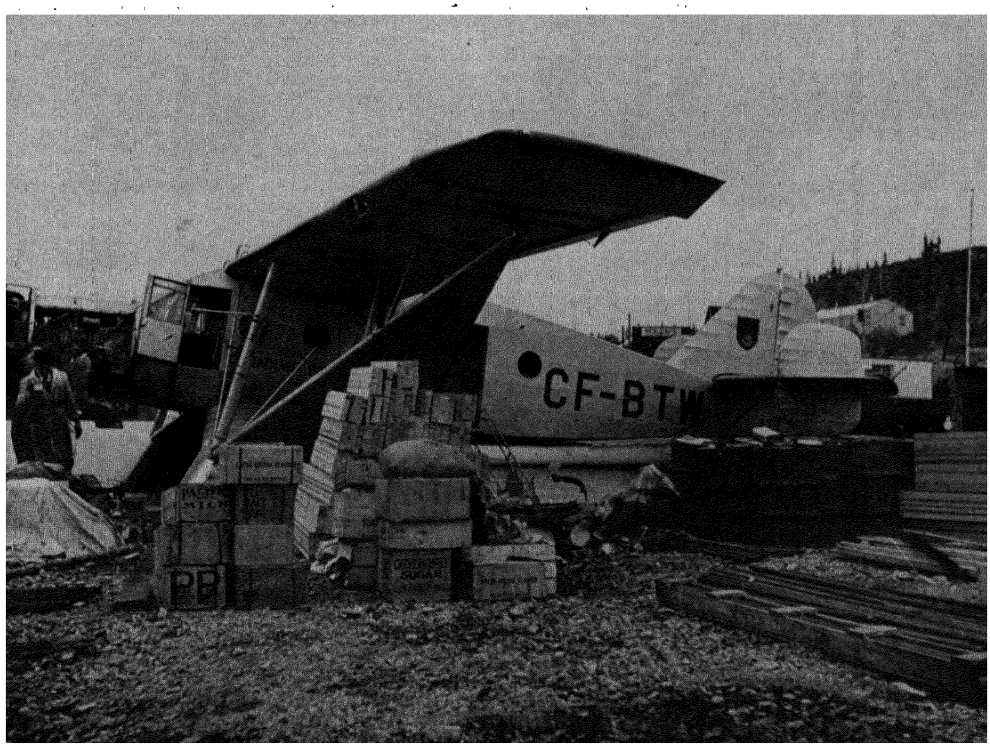
CANADA



Eldorado Mine worker pours uranium ore concentrate into 100-pound bags for shipment to the refinery at Port Hope.



Polished section of piece of pitchblende ore showing fragments of brecciated pitchblende (light) in a matrix of later quartz.



Courtesy Canadian Information Service

Supplies were flown in by airplane to the 225 people who, isolated at Port Radium on Great Bear Lake near the Arctic Circle, worked the Eldorado Mine to produce pitchblende from which uranium, vital component of the atomic bomb, was obtained.

Country exporting to Canada	July 1945	July 1944
Honduras	640,000	86,000
Argentina	499,000	521,000
Ecuador	449,000	9,000
Switzerland	444,000	375,000
Barbados	304,000	680,000
British South Africa	301,000	271,000

Principal Events. — Five significant elections took place in Canada during 1945: a provincial election in Ontario on June 4, a federal election on June 11, a provincial election in Manitoba on October 12, one in Nova Scotia on October 22, and one in British Columbia on October 25. The Ontario election was precipitated when the Liberals, C.C.F.-Socialists and Communists, co-operated in making further administration impossible for the Progressive-Conservative minority government of the Hon. George A. Drew. The provincial Liberals had welcomed back into leadership the colorful "Mitch" Hepburn, whose powers of political invective were regarded as a campaign asset. However, his party was overwhelmingly defeated at the polls; and Mr. Hepburn himself was defeated in his home constituency of Elgin. The other chief challenge came from the C.C.F.-Socialists, whose provincial leader, Mr. E. B. Jolliffe, accused the Conservative administration of maintaining a "Gestapo" secret police to spy on its political opponents and so keep itself in power. The charge, however, reacted more strongly against the accuser than against the accused; and Mr. Jolliffe's party was snowed under at the election. A subsequent Royal Commission found the charges groundless; that the police branch in question, consisting ultimately of one detective only, was not of the political character alleged, but was rather a wartime counterespionage branch, set up in 1940 by the previous Liberal administration of Mr. Hepburn in order to investigate persons suspected of trying to undermine Canada's war effort. As for the Communists in the 1945 elections, only two of their candidates, Messrs. J. B. Salsberg and A. A McLeod, were successful, their ridings being two predominantly foreign-language districts of Toronto. The general impression of the election was that the voters of Ontario wanted sound and stable government during the turbulent years of transition back to peace, and that they felt that only the provincial Conservatives seemed likely to supply it. Hence the resounding victory of Col. George Drew, whose party won two thirds of the provincial seats.

It is probable that comparable reasoning lay behind the results of the federal elections a week later, in which the Liberal government of the Rt. Hon. W. L. Mackenzie King was returned to power, although with a greatly reduced majority. Mr. King had been continuously prime minister for ten years, with a large majority, and many prophesied that popular discontent with war governments and their rigorous economic controls would sweep him out of office in this first election after V-E Day. The challenge came from the C.C.F.-Socialists under Mr. M. J. Coldwell and from the Progressive-Conservatives under Mr. John Bracken, both of whom forecast victory for their parties and both of whom apparently misgauged the realities of Canadian political life. The Liberal administration had already introduced so large a measure of social and socialist legislation (a national bank, family allowances, etc.) that the C.C.F.-Socialists felt themselves compelled to move farther Left in order to vindicate their separate identity; and as a result they preached such an immediate and widespread program of Socialist expropriation that the Canadian electorate (still largely sympathetic with private ownership and free enterprise) took alarm and rejected the would-be innovators and their threatened intensification of economic controls. In all of Eastern Canada this group elected only one member, while in the West their representation was largely confined to the province of Saskatchewan, where a C.C.F.-Socialist legislature was already in control. The strategic error of the Progressive-Conservatives was of a different character. Looking about for an issue on which to fight the Liberals, they seized on Mr. King's manpower policy and his failure to enforce a more rigorous conscription program in the province of Quebec, which for strong historic reasons did not view the sending of Canadian troops abroad with the same fervor as did the more strongly Anglo-Canadian communities. When, after the victory in Europe and amid the general feeling in Canada that the remaining Japanese chapter, though bloody, was a small-scale affair, Mr. Bracken loudly demanded that Canadian conscripts (meaning the French-Canadians) be forcibly shipped abroad to do Canada's fighting in the Pacific theater, he completely alienated Quebec from his party, without winning over a commensurate share of the remaining electorate. In a country where less than one half of the population is of Anglo-Saxon origin, and where that Anglo-Saxon minority is divided in its political loyalty among at least three parties, the French, with one third of the country's population, are obviously in a position to hold the balance of power. Mr. Bracken thus deliberately began the electoral contest from minus seventy-five (the number of traditionally French constituencies in New Brunswick, Quebec, Ontario and Manitoba) and faced the almost impossible task of winning three quarters of the remaining 170 seats throughout the country if he were to secure a working majority. The chief result of the Conservative attack on the French (to whom the Conservatives themselves had given assurance in the 1940 wartime election that conscription for overseas service would never be invoked) was the massing of French support behind the Liberals, with a resultant victory for Mr. King. The Conservatives may have derived some emotional satisfaction from their campaign outburst against the French, but in their appeal to the animus of the Anglo-Saxon minority and in their apparent refusal to face the hard fact that it is a minority, they aggressively threw away the election and perhaps their future as a federal party. Incidentally, many citizens, realizing the necessity of a strong government during the difficult postwar years, voted for Mr. King as the only alternative that did not involve drastic experiments in socialism. The Communists made a curious further contribution to the election by running about thirty candidates of their own and urging the electors in all other ridings to vote Liberal. Their chief hostility was directed against the C.C.F.-Socialists (the "Social Democrats" of Canada), because of the latters' refusal to agree to a "united front" or to sanction other forms of Communist interpenetration. Only one Communist was elected.

In the Nova Scotia election, on October 22, the contesting parties were the Liberals (in power for the preceding 12 years) under Premier Angus Macdonald, the Conservatives under L. W. Fraser, and the C.C.F. under Donald MacDonald. The Liberals carried 28 seats, the C.C.F. were

reduced from 3 to 2, and the Conservatives, formerly the official opposition, were eliminated entirely.

In contrast to this decisive Liberal victory in a three-party fight, the Liberals in Manitoba and in British Columbia felt it necessary to maintain a coalition slate of candidates as against the C.C.F.-Socialists. The result in Manitoba on October 12 was: Coalition 43, Opposition C.C.F. 9, Independent C.C.F. 1, Ukrainian Communist 1, Independent 1. That in British Columbia on October 25 was equally decisive: Coalition 37, C.C.F. 10, Labor 1. In Manitoba, the C.C.F. seats had risen from 3 to 9, while in British Columbia they had dropped from 16 to 10. In all three of these recent elections, however, they became the official opposition. In this there is perhaps the pattern of things to come: a trend towards the merging of the two older, free-enterprise political parties as against the political challenge of socialism. The model of the C.C.F. is the Labour Party in Great Britain, and the success or failure of the Socialist experiment there will have great significance for the future of Canadian politics.

Of possibly even greater importance than the elections of 1945 was a conference of the nine provincial premiers with the federal prime minister, with a view to readjusting the administrative and economic relationships between the provinces and the federal government. When the Dominion of Canada was set up on a federal basis in 1867, the respective functions, jurisdictions and taxing powers, as between provinces and the central government, were carefully prescribed in the British North America Act, which is the basis of Canadian constitutional law. After seventy years, the stresses and strains of the system had become acute, as the economic and social development of the country had followed a course that was unpredictable in 1867 and had left the old division of powers and functions gravely obsolete. An Order in Council (P.C. 1908) dated August 14, 1937, therefore set up a Royal Commission to study the matter. This commission tendered its report in May 1940; but a Dominion-Provincial Conference held in 1941, in order to study and if possible to implement its recommendations, was frustrated by the obstructionist tactics of Premier Hepburn of Ontario and Premier Aberhart of Alberta. In August 1945, another attempt was made to face up to an intolerable situation. On this occasion, the atmosphere of the meeting was much more reasonable and cordial. The federal government had prepared a very extensive brief of what it was willing to offer to the provinces; and after some preliminary discussion, the provincial delegations went home to digest this brief before a later meeting. The economic gist of the federal proposal is that the provinces shall give up the collection of personal and corporation income tax and succession duties, and shall receive in exchange a per capita subsidy from the federal treasury. The proposed subsidies are in most cases much beyond what the provinces themselves have been able to raise from these same sources of income; but some of the provincial premiers are fearful lest they should be signing away the essential authority of their legislatures. As Colonel Drew, the premier of Ontario, has put it: "Any arrangement which provided for a centralized collection of the greater part of the tax requirements of provincial governments and made them mere annuitants of the central government, would place the control with the central government to such an extent that meetings of the members of the legislature would become almost meaningless."

This may be an over-statement of the case. It was obvious that the Founding Fathers intended that over-ruling authority should rest with the federal government, for they reversed the American practice and wrote into the constitution that the residue of unspecified powers should inhere in the federal government and not in the provinces. The next seventy years, however, saw a continual breaking down of this principle, largely through a series of tendentious decisions by the Judicial Committee of the Privy Council in London, and in the twenties and thirties it became obvious that there had been such an unanticipated aggrandizement of provincial authority that there was danger of the whole federal system collapsing. During the war, however, the real seat of power was in Ottawa, and the astonishing measure of Canada's war achievement was in large measure due to the effectiveness of the centralized control. The problem now facing the country is that of reconciling the need of similar effective direction in the hazardous postwar world with the preservation of an essential minimum of provincial and municipal autonomy. See REHABILITATION—*Rehabilitation in Canada.*

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CANADA'S NATIONAL PARKS. The first national park was established at Banff, in what is now the Province of Alberta, in 1885, especially to enclose the medicinal hot springs which are found in that area. The system was enlarged by the establishment of other national parks from time to time, until it now extends from British Columbia to Nova Scotia, consists of 26 units, and has an aggregate area of more than 29,000 square miles. Investment of the Canadian people in their national parks approaches $44,000,000, aside from the value of the land and from the investments which have been made by corporations and individuals. Before the war the number of tourists visiting the national parks of Canada in a single year exceeded 1,000,000. With wartime restrictions on travel, and the other conditions inseparable from the great conflict, attendance fell to less than half that figure, and consisted mainly of Canadians and members of the armed forces from other British countries and the United States, temporarily in Canada. Since the conclusion of the war, a marked upward movement in attendance has been noted, and it is expected that this trend will continue and increase, as the world returns to normal conditions.

During wartime it was not the policy of the Canadian government to divert money and labor from the direct war effort by making capital investments in the parks, but due regard was had for maintaining them in proper condition and for the prevention of depreciation. Forest fires are the greatest menace to the parks, and during the war these were carefully controlled, so that losses were not abnormal. All parks have remained open during the usual park season, some of them operating only for the summer months and some the year round.

Although no new works of an extensive nature have yet been undertaken, much consideration has been given to postwar development of the national parks.

While it is impossible to state exactly what improvements will be undertaken in the near fu-

ture, the following are presented as the chief lines of thought being followed by those administering the parks in their study of postwar improvements: (1) Better arterial and secondary highways leading to national parks; (2) improved highways within the parks; (3) cheaper accommodation available to those of low incomes; (4) modern sanitary facilities and other conveniences; (5) secondary roads, foot and horse trails, in order to make points of special interest readily accesible; (6) improved fire and game protection to meet increased dangers from heavier and more widespread use of national parks.

Besides serving as recreation areas, the parks are used as national sanctuaries for wild animals and birds. The preservation of the North American bison has been closely associated with the national parks, as have also other forms of wildlife indigenous to the country. In the national parks all wildlife is rigidly protected, and primal natural conditions are maintained as far as possible.

The national parks of Canada are administered by the National Parks Bureau of the Lands, Parks, and Forests Branch, Department of Mines and Resources, with headquarters at Ottawa. This bureau also has supervision of the historic sites which have been acquired throughout the country on the recommendation of the National Historic Sites and Monuments Board, an honorary body of recognized historians organized to advise the government in this connection.

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National Parks Bureau, Ottawa, Canada.

CANADA'S WAR EFFORT IN 1945. The year 1945 saw Canada taking a full share in the military operations that brought the European war to an end in May. The country was actively regrouping its forces for a larger share in the Pacific war against Japan when the latter enemy suddenly collapsed in late August.

Military Operations.—The main Canadian share in the military operations of 1945 consisted of a grueling three months' campaign by the Canadian First Army, beginning in early February in the German Rhineland, slashing north through the five eastern provinces of Holland, and then wheeling east into northwest Germany, turning the enemy's right flank and capturing Oldenburg on the eve of the armistice.

The first seven weeks, beginning February 7, consisted of desperate fighting against some of Hitler's best troops, who were concentrated in the northern Rhineland in great force to guard the right flank of the Reich. During the first six days, the Canadians, starting from a point northwest of Düsseldorf, cleared the whole of the Reichswald. On February 15, they occupied Kessel and Viller, and also made progress toward Emmerich, taking Warbeyen and reaching the Rhine at one point opposite Emmerich. The next day they captured Huisberden and repulsed strong counterattacks. By February 17, the tenth day of their offensive, they had taken 7,000 prisoners, including 900 parachutists, and, northwest of Goch, had occupied Asperden, Hervorst and Hessum.

On February 27, the Canadian First Army launched an attack in great force, captured Calcar and Uedem, and entered the Hochwald, where the opposition was very strong. On March 1 the troops, capturing Weeze, pushed through the Hochwald and linked up with the American Ninth Army. There was very hard fighting near Xanten and west of Wesel for several days. Around the Wesel bend of the Rhine, the Germans had massed the largest number of guns and mortars ever faced by the Canadians in a single sector; and the fighting south of Xanten, particularly at Veen, was the bitterest in which they had ever been engaged. On March 9 the Germans broke, blew up the two bridges at Wesel, and retreated eastward. The result of just over a month's fighting was the capture of 50,000 prisoners and the inflicting of very heavy casualties on some of the enemy's best troops.

The next phase of the action lay to the north, where the Germans had concentrated their strongest units around Arnhem and in eastern Holland. On March 28, the Canadian First Army reached Emmerich, and two days later they crossed the Dutch frontier into Gelderland. The plan of attack was a slicing drive along the line of the Ijssel River, due north, outflanking the German position from Arnhem to the Zuider Zee. By April 2 they had pushed 15 miles into Holland along the Zutphen-Hengelo road, and by April 4 they had entered the southern outskirts of Zutphen, previously best known in history as the place wherein Sir Philip Sidney received his mortal wound in battle in 1586. The opposition was very strong, and Allied parachutists were dropped to give the Canadians extra support; but it was not until March 8 that Zutphen was finally cleared. The tactical log jam had now been broken, and within two days Canadian patrols sped 40 miles north to reach the Zuider Zee, west of Meppel. By the 14th the Canadians were nearly 100 miles beyond Zutphen, occupying Leeuwarden, Apeldoorn, Groningen, and other towns in the northerly provinces of Friesland and Groningen. Some of the troops wheeled west and captured the North Sea port of Harlingen, near the end of the Zuider Zee causeway. By the 18th practically all of northern Holland had been cleared of Germans, many of whom fled by sea.

The last phase of the action was a swift eastward thrust into Germany, just south of Emden, turning the now vulnerable right flank of Germany's western defenses. Papenburg and Aschendorf were entered on the 21st of April, the peninsula south of Emden was cleared by the 27th, and on May 3, after severe fighting, the Canadians captured the city of Oldenburg. The next day, Field Marshal Montgomery announced that all German forces in Holland, northwest Germany, and Denmark were surrendering unconditionally as from 8 A.M. on May 5.

Its share in the defeat of Germany having been duly accomplished, the Canadian First Army was dissolved as a field formation on July 31. Some of its personnel were to be used for occupational duties in Germany, some were to be diverted to the campaign against the Japanese, and the rest were slated for repatriation and demobilization. Those remaining in the field were temporarily designated as "Canadian Forces in the Netherlands." Gen. H. D. G. Crerar, commander of the Canadian First Army, returned to Canada; and the command of the force in the Netherlands was taken over by Lieut. Gen. G. G. Simonds.

Pacific Operations.—For duty in the Pacific the forces planned in July 1945 were to consist of 30,000 infantry troops fighting under American command, a naval force of 37,000 (13,500 to man naval units and the balance as replacements), and an unspecified proportion of the 100,000 members of the Royal Canadian Air Force who were still to be maintained for duty.

The Pacific force, whose numbers were arranged by the Allied High Command, were so small in proportion to Canada's armed forces in the European theater of the war that service was now placed on a voluntary basis. Units of the Canadian Navy had begun to share in action off Japan when the sudden collapse of Nippon, hastened by the use of the atomic bomb, rendered any further Pacific program superfluous. Incidentally, it is worth noting that scores of Canadian scientists, working in the research laboratories of the University of Toronto, McMaster University, and the National Research Council, played a significant part in the larger pattern of controlled research—British, Canadian and American—that led to the effective invention of the atomic bomb.

Recapitulation, Armed Forces.—The end of the war provides an opportunity for recapitulating not merely the war effort of 1945 but that of the entire war, which, for Canada, lasted six full years.

At the outbreak of the war, one of the first tasks confronting this nation of fewer than 12,000,000 people was an overall assessment and redirection of its manpower to produce maximum strength for its armed forces and for its industrial and primary production needs. More than a million of its physically best entered the services, yet the depleted population produced more food, lumber and minerals, and manufactured a larger quantity of goods, than had ever before been turned out.

When Canada entered the war, its armed forces totaled only slightly more than 10,000—a naval nucleus of 1,700, a permanent army of 4,500, and an air force of 4,000. By the end of March 1945, the intake into the Royal Canadian Navy totaled 99,037, that into the Army 687,074, and that into the Royal Canadian Air Force 221,922, or a total for all services of 1,008,033.

The navy now consisted of 939 ships, of which 373 were combat ships. These had sunk, or helped to sink, at least 68 enemy surface vessels, had damaged 41 others, and captured two; and had also sunk 23 submarines. The Royal Canadian Navy had itself lost 24 warships, with casualties of 2,300.

As for the army, its continuous activity in Europe began on July 10, 1943, with the invasion of Sicily, where the Canadian 1st. Division and 1st Armored Brigade were an important part of the striking force. This was likewise the case in Italy, where the 1st Canadian Corps was organized later in the year and fought for upwards of 20 months under Canadian command as part of the British Eighth Army. In June 1944, the Canadian 3d Division took part in the invasion of Normandy, and in August 1944 the Canadian First Army was in action in France. The heaviest Canadian actions of the year were (1) at Caen and Carpiquet, (2) the drive past Falaise and up the channel coast, and (3) the bitter fighting around the Scheldt estuary. During the spring campaign of 1945, from the Rhineland through east Holland to Oldenburg, all the Canadian army units in Italy were transferred to northwest Europe and incorporated in the Canadian First Army. Total army casualties at the close of hostilities were 21,806 dead, 51,428 wounded, 351 missing, and 6,469 captured.

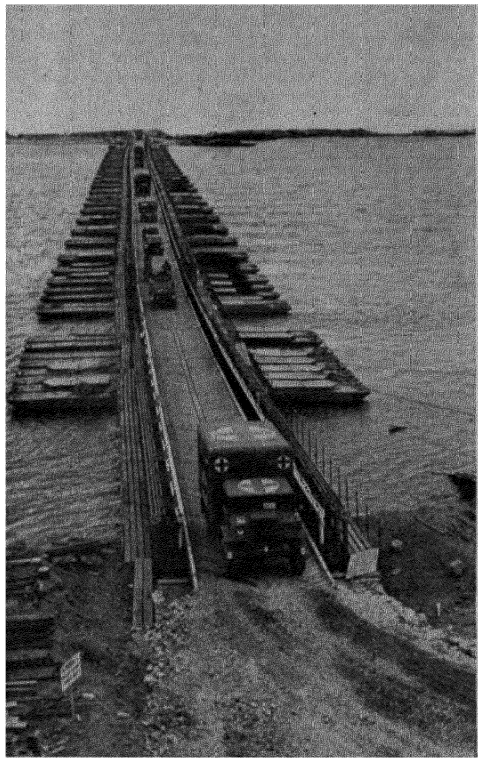
The work of the Royal Canadian Air Force consisted partly of developing and administering the British Commonwealth Air Training Plan, by which, under the clear skies of Canada, great numbers of airmen, not only from the United Kingdom, Australia, New Zealand and Canada, but also from Belgium, Czechoslovakia, France, Mexico, Holland, Newfoundland, Poland, the West Indies and the United States, received their training in every branch of aviation. It also consisted partly of active service in every quarter of the world. There were RCAF units on Atlantic patrol from Canadian bases, on coastal command from English bases, on day and night fighter duty over and from England, and on bomber command attacking Europe. Even this gives only a fragmentary record of Canadian air achievement, because for every Canadian air crew serving in a RCAF squadron, there were several flying with RAF units in every command and in every theater of war. They had a hand in the smashing of the Mohne and Eder dams, and in the sinking of the *Tirpitz*. Canadian pilots fought in the long Battle of Malta; they accompanied a RAF mission to Russia; Canadians flew over the Western Desert and accompanied the Allied forces in the invasion of North Africa; they participated in air battles and bombing expeditions over the jungles of Burma. By the hundreds they were in transport command, ferrying aircraft across the Atlantic, over Africa, along the Persian Gulf, and wherever RAF craft were to be found. The casualties of the RCAF totaled 14,247 dead, 1,327 wounded, 2,505 missing, and 2,485 captured.

War Production.—Canada's role in war production was even more spectacular than that in the combat services. By 1945, Canada ranked not only as the second largest exporting nation in the world but also as the fourth largest producer of war supplies among the United Nations. Supply and capital commitments to the end of May 1945 totaled over $10,900,000,000 or more than $900 per capita. Some of the items manufactured were 14,696 aircraft, 707,000 military vehicles, 45,710 armored vehicles, 82,000 heavy guns, 1,475,800 small arms, 1,763,500 tons of chemicals and explosives, 89,200,000 rounds of heavy ammunition, and 7,918 vessels.

Fully 70 per cent of this very great output was supplied by Canada to Great Britain and Russia, and much of it as a free gift. Canada, which alone among the United Nations received nothing from American lend-lease, itself made extensive free contributions of war supplies, food and raw materials to other countries. During the two fiscal years preceding March 31, 1945, total Canadian expenditures under this "mutual aid" arrangement, for supplies freely shipped to the United Kingdom, the Soviet Union, China, France, Australia, New Zealand, and India, were estimated at $1,727,603,000.

War Expenditures.—Total war expenditures in the six fiscal years preceding March 31, 1945, amounted to more than $15,138,000,000, or about nine times the cost of war and demobilization in the First World War. The total tax revenues in the six-year period were $9,393,000,000, while other revenues brought the total to $10,576,000,000, about seven times the revenue collected during the First World War and its subsequent demobilization period. A notable feature of the wartime tax structure has been the increased reliance on direct taxation, especially in the form of the tax on individual incomes. As the cost of the war considerably exceeded the revenues available from taxation, recourse was also had to borrowing, especially from the general public. The total amount contributed by the latter in two "war loans" (January and September 1940)

CANADA



A Bailey bridge built over the Rhine by Canadian army engineers is opened to traffic.



In a veritable wilderness, deep in German territory, Canadian soldiers keep warm around a rough log fire.



A once proud and cocksure German army commander stands sullenly by as Canadian soldiers search his belongings.



Canadian Army

This V-1 launching site was used in the launching of flying bombs against Antwerp.

and nine "victory loans" (June 1941, February and October 1942, April and October 1943, April and October 1944, April and October 1945) was in excess of twelve billion dollars. Neither was this taken up largely by a few big corporations, for the number of individual applications for the 8th Victory Loan alone was 3,178,275.

Economic Controls.—A final word should be said with regard to economic controls. Canada, in October 1941, was the first democratic country to adopt an overall price ceiling, with the result that the cost of living increased by only 2.8 per cent from that time until April 1, 1945. By this means, and by rationing and the drawing off of purchasing power through income taxes, compulsory saving and war loans, the disastrous inflation of the First World War was almost entirely averted. WATSON KIRKCONNELL,
Professor of English, McMaster University, Hamilton, Ontario.

CANADIAN CORPS ASSOCIATION. This association was formed in April 1935 as a result of the 1934 reunion of the veterans of the Canadian Corps, made up of those who had served overseas during the First World War. The association membership consists mainly of unit organizations which operated as such during the First World War. The association is supported by unit fees, which vary, as each unit is in large degree autonomous; and by the operation of a monthly magazine devoted to veteran's affairs, *Torch*, which is for sale to the public. In addition to the *Torch*, it also publishes *Signal*, a house organ circulated among units. The total membership is estimated at between 50,000 and 60,000. During 1945 the association devoted its energies to veteran's affairs, with special emphasis on housing. The annual meeting was held at Ottawa, Canada, Nov. 22-24, 1945. Officers of the association for 1945 were: president, Major G. Fay Davies; honorary treasurer, Major Edwin Meredith; honorary secretary, Col. J. A. McCamus. Organization headquarters: 71 King Street West, Toronto, Ontario.

CANADIAN LITERATURE. The primary purpose of the novel is to entertain. If it can at the same time instruct, so much the better. Two outstanding Canadian novels of 1945 fill both requirements. They deal entertainingly with the question of social and political relations of English-speaking and French-speaking Canadians, a question that has given serious concern to thoughtful Canadians, and is not without interest to Americans and others who face, in greater or less degree, the same problems. These two novels are: *Two Solitudes* by Hugh MacLennan and *All This Difference* by Dorothy Dumbrille. The scene of the former is Montreal and rural Quebec, and of the latter Glengarry County, the easternmost corner of Ontario, between the St. Lawrence and Ottawa rivers. Glengarry, once filled with Highland Scots, is today largely French-Canadian. Here, as in Montreal, racial and religious differences lead sometimes to tense situations. *Two Solitudes* is in a sense a companion novel to Gwethalyn Graham's *Earth and High Heaven*, mentioned in last year's survey, whose subject was the clash between Jew and Gentile in Montreal.

Very few books of fiction have been published with the people and atmosphere of Ottawa as their theme. Robert Fontaine, in *The Happy Time*, his first full-length novel, goes back to his boyhood home in the Canadian capital. The story has a slim plot, but there is in it more than a little of the humor of character and incident that have made *Life With Father* so deservedly popular. When he pictures the French-Canadian father and uncles and grandfather, unconventional and engaging, against the human background of a Scottish mother, one feels that Fontaine is telling us something about his own people, and doing it very well.

Duncan Campbell Scott, the octogenarian Canadian poet, published many years ago a delightful collection of tales of French Canada, *In the Village of Viger*, that has this year been reprinted. John Macdonald, in *Darkly the River Flows*, tells the grim story of a bitter family feud between two brothers, the scene partly in Toronto and partly in the Temagami country far to the north. Fishing and hunting tales in Nova Scotia is the theme of Phil H. Moore's *The Castle Buck*. *Better Harvest*, by Violet King, reconstructs the stormy days before and during the Rebellion of 1837 in Upper Canada—the rebellion that was led by the grandfather of the present prime minister of Canada. Thomas H. Raddall, who has published several novels the scenes of which are laid in Nova Scotia, has brought together a collection of short stories, under the title *Tambour*, with about them the same tang of the sea. Nova Scotia and Glengarry seem to claim a large share of this year's Canadian fiction. *The Shadow of Tradition*, by C. Holmes MacGillivray, follows the fortunes of a pioneer family in Glengarry; and Will R. Bird's *Here Stays Good Yorkshire*, is not, as one might suppose, a tale of that English county made famous by Eric Knight, but has to do with the early days of Cumberland County, the borderland between Nova Scotia and New Brunswick. This and Philip Child's *Day of Wrath*, with a contemporary European background, share this year's Ryerson Fiction Award. Mabel Dunham, who, a decade or two ago, published an excellent story of the long trek of Pennsylvania Dutch to Upper Canada in the days of the Conestoga wagon, takes up the lives of some of their descendants in *Grand River*. While this survey does not attempt to cover the outstanding books of the year by French-Canadians in their own language, one should be mentioned. Mme. Germaine Guèvremont's *Le Survenant* is an authentic novel of the life of the *habitant*—the small farmer—in the Richelieu Valley.

In the period between the two world wars, Archibald MacMechan, of Dalhousie University, prepared several volumes of prose sketches of sea exploits off the Nova Scotia coasts, in the great days of the sailing ship. Now another Halifax man, Andrew Merkel, in *Tallahassee*, tells more of the same salty sea yarns, in the easily flowing meter of the ballad. Edwin J. Pratt, whose *Collected Poems* were published last year, has issued this year a single poem, *They Are Returning*, into which he has put in vigorous verse his tribute to the men who are coming back to their homeland from the war:

> They shall come back to build in stubborn rhyme
> Out of Laurentian rock and Norman lime,
> Memorial towers Canadian. . . .

And into Tom Melville's *Barbed Wire Ballads*, the simple, moving ballads of a Canadian soldier in a German prisoner-of-war camp, have been put unforgettable memories of battle. Anne Marriott in *Sandstone* reveals the essential sincerity of her verse, and its variety of form and subject. Helen Middleton's *Drumbeats Through Your Dreams* and Helen Fairbairn's *From Dawn to Dusk* contain notable additions to contemporary Canadian

poetry. Sir Thomas White has put his thoughts about certain events of the war into *The Battle of Britain.* Ira Dilworth has compiled an interesting and provocative anthology in his *Twentieth Century Verse.*

Stephen Leacock suffered from the same handicap as Mark Twain: people had been so accustomed to thinking that everything he said must have a humorous angle, that in the end they refused to take him seriously when he happened to be in an altogether serious mood. In *While There Is Time*—the last thing he completed for publication before his death—the former professor of economics at McGill University warns his countrymen of the danger of catastrophe that lies in the dispute as to private enterprise and state control, unless, before it is too late, these two principles are reconciled. Viscountess Byng, widow of a former governor general of Canada, has put her entertaining reminiscences into *Up the Stream of Time.*

Two Canadian historians, George W. Brown and Edgar McInnis, have recently had something worth while to say in print—the former in *Canadian Democracy in Action* and the latter in *North America and the Modern World.* The former amplifies here what Professor Brown had said in his *Building the Canadian Nation* about the Canadian system of government, and the latter turns from the theme of Canadian-American relations of Dr. McInnis's former book, *The Unguarded Frontier,* to the broader subject of nationalism and democracy on this continent. For the impartial student, a companion volume to Mr. Mackenzie King's speeches, mentioned in the 1944 survey, is *Left Turn, Canada,* by M. J. Coldwell, leader of the Cooperative Commonwealth Federation (CCF) party in Canadian politics.

Three recent contributions to the literature of Canadian art are D. G. W. McRae's *The Arts and Crafts in Canada;* a sympathetic but just study by William Colgate of the work of the landscape painter and scholar *Charles W. Jefferys;* and the second volume of Mr. Jeffreys' *Picture Gallery of Canadian History.* A fine tribute to a Canadian artist and writer, whose death early in 1945 was a severe loss to her country, is contained in *Emily Carr: Her Paintings and Sketches,* with a biography by Ira Dilworth and text by Lawren Harris. The National Gallery has also sponsored an important work on *The Development of Painting in Canada.*

The war is over, but books about it or its results continue to appear. Two that offer restrained but moving impressions of the life of Canadian airmen are *Only the Stars Know* by Flight Lieutenant D. A. MacMillen, and *The Diary of a Canadian Fighter Pilot,* by Flying Officer W. S. Large. The story of the Canadian Army overseas is told effectively by Ross Munro in *Gauntlet to Overlord.* A difficult phase of after-the-war problems is dealt with effectively in Vladimir Grossman's *The Pan-Germanic Web: Remaking Europe,* and M. H. Myerson's *Germany's War Crimes and Punishment.* Edgar McInnis published his invaluable survey *The War: Fifth Year,* completing the work.

LAWRENCE J. BURPEE,
Secretary, International Joint Commission, Ottawa.

CANADIAN MEDICAL ASSOCIATION. This association, which is affiliated with the British Medical Association, was founded in 1867, and held its 76th annual meeting at Montreal June 11-15, 1945. The membership of the association exceeds 9,000, which is more than 80 per cent of the total medical profession of Canada. Membership in the Dominion association is contingent upon membership in one of the nine divisional, i. e. provincial, medical associations. The association, which is particularly interested in medical education, and all things affecting the public health, such as nutrition, sanitation, medical care, and hospitalization, publishes *The Canadian Medical Association Journal.* The officers in 1945 were: president, Dr. Leon Gerin-Lajoie, Montreal; president-elect, Dr. Wallace Wilson, Vancouver; chairman of the council, Dr. A. E. Archer, Lamont, Alberta; honorary treasurer, Dr. D. S. Lewis, Montreal; managing editor, Dr. Frank S. Patch, Montreal; editor, Dr. H. E. MacDermot, Montreal; general secretary, Dr. T. C. Routley, Toronto; associate secretary, Dr. G. Harvey Agnew, Toronto.

CANADIAN NAVY. See NAVAL PROGRESS.

CANAL ZONE. See PANAMA CANAL ZONE.

CANALS. The St. Lawrence Seaway.—The long disputed and twice rejected St. Lawrence Seaway project came into consideration again by the United States Senate, when President Truman on October 3 sent a special message to Congress urging the speedy authorization of this project. While the message emphasized the power phase of the project, this would be of benefit to New York and New England in this country, which would be within the reach of the transmission lines from the power stations at the International Rapids. The seaway itself would serve for cheap means of transportation in the whole Great Lakes region, and make ocean-going vessels available to the Great Lakes ports. The proposal is now to turn over to the New York State Power Authority this country's share of the power facilities to be developed, the State of New York to assume the cost of these power facilities amounting to approximately $93,000,000. The whole project would cost $429,000,000, and Canada's part would be $144,000,000. On the seaway, Canada has already reconstructed the Welland Canal around Niagara Falls and enlarged the locks to take ocean steamers of 25-foot draught. The locks and canals in the lower St. Lawrence remain to be enlarged, and the new canals around the proposed dams are to be built to give a minimum depth of channel all the way for boats of 25-foot draught. The new measure introduced into Congress to give effect to the United States-Canada agreement was a joint resolution and required only a simple majority of each house to effect its passage.

New Jersey Ship Canal.—This canal from Bordentown on the Delaware River above Philadelphia to the New York Harbor area, is still on the program as a part of the Intra-coastal Waterway. A small scale model of this canal has been made at Vicksburg to solve several problems, including the danger of salt water flowing into the canal from the harbor entrances. To avoid this three locks are placed at each end of the canal to maintain the canal and pool level at 10 feet above the mean low tidewater level. The canal will be 250 feet wide and 33 feet deep to give ample clearance for 27-foot draft vessels. The water supply will be pumped from the Delaware River, and will come also from the natural flow of the Raritan River.

San Diego Aqueduct.—In July the contract for the first 20-mile section of the San Diego, Calif., Aqueduct was let. It is the $17,000,000 emergency project over a 70-mile route on which sur-

veys were made in the winter of 1944–45. The inlet end will be at the west end of the Colorado River Aqueduct's San Jacinto Tunnel. The terminal will be at the San Vicente Reservoir, 18 miles east of San Diego. The flow will be by gravity, and the construction will involve tunnel work which was scheduled to start on November 1.

Friant-Bakersfield Canal.—In August 1945, the Bureau of Reclamation announced that the first contract had been let on a section of the Friant-Bakersfield Canal in southern California. The building of this canal was held back on account of the war, but it is a major part of the great California Valley project which includes using surplus water from the Sacramento River to irrigate the northern part of the San Joaquin Valley, and by means of the Friant Dam to divert water from the upper San Joaquin south 160 miles to near Bakersfield. It will take about three years to complete this canal which will have a maximum depth of 15 feet and be 100 feet wide at surface level of the water. It will irrigate 1,500,000 acres and cost more than $23,500,000, which was the 1940 estimate.

Proposed Tennessee River-Tombigbee River Canal.—In May 1945, a board of United States Army engineers opened a hearing in Mobile, Alabama, to bring up to date information on the proposed canal to link the Tennessee River in northern Alabama to the head waters of the Tombigbee River. The proposed plan includes a 20-mile canal across the low watershed between the Tennessee River near the Pickwick Dam and the Tombigbee. This latter river will be dredged and canalized through its course to Mobile Harbor to give the 9-foot barge stage. This was a proposed postwar project, and its chief value was that it affords a short cut from the Tennessee Valley to the Gulf of Mexico instead of by the Ohio and Mississippi rivers to New Orleans, and it would connect the Tennessee Valley directly with the Alabama River system. This is a $66,000,000 project.

Miscellaneous.—In the lower Mississippi Valley and Gulf Coast region much valuable use has been made of the coastal canals and inland waterways by barge traffic. In the third quarter of 1944 more than 60,000 tank-car days were saved by barge shipment of petroleum alone by coastal canal from Texas to Florida. This and other shipments by water have started a program for the extension of waterway improvements. New Orleans has filed two petitions for construction of tidewater canals to connect New Orleans with the Gulf; and Dallas, Texas, has proposed to canalize the Trinity River to connect that city with Galveston Bay and the coastal barge canal.

E. C. McDowell,
Consulting Engineer, New York.

CANARY ISLANDS. A cluster of 13 islands in the Atlantic Ocean about 60 miles from Rio de Oro on the northwest coast of Africa, comprising two Spanish provinces, with an area of 2,807 square miles and a population of 687,937. The seven largest islands are Palma, Hierro, Gomera, Tenerife (which comprise the province of Santa Cruz de Tenerife), Grand Canary, Fuerteventura and Lanzarote (which, with the smaller islands, comprise the province of Las Palmas). The remaining six islands are little more than bare rock formations. Claimed by Spain in the latter part of the 15th century, the group is rugged and mountainous and contains evidences of volcanic activity. The soil where suited for agriculture provides grain, fruit, and vegetable crops in abundance. Coffee growing is the leading industry. Tenerife and Palma are noted for their excellent wine. Exports consist largely of bananas (50,834 metric tons in 1944), tomatoes, onions, potatoes, cochineal, sugar, fish, and wine. Leading imports are textiles, manufactured goods, cereals, and coal (110,026 metric tons of coal were landed at Las Palmas in 1944, mostly from continental Spain). Santa Cruz (pop. 72,358) and Las Palmas (pop. 119,599) are the principal ports. A 2-year government housing project was begun at Las Palmas in December 1944 to provide 442 apartments to shelter 2,314 tenants. Private construction has been hampered by the high cost of materials. Wireless and steamship connections are maintained with Spain (q.v.).

CANCER, Causation of. Interesting studies on the causation of cancer by a variety of chemical substances and in a large number of species of animals are being actively carried on in research laboratories. Many curious and so far inexplicable differences have been shown, for example: tar is an effective producer of cancer in man and rabbits when applied to the skin; it does not work with white rats, but produces a large number of skin cancers in mice. In guinea pigs tumors are extremely difficult to produce with this agent. Are these differences species differences, or are they due to local differences in tissues? We are not yet clear about this matter. Apparently the synthetic phenanthrene compounds and some of slightly differing structure, such as methylcholanthrene, are powerful inducers of cancer in almost all animals on which they have been tried. Tumors require a long time for their production in dogs and cats, and none have so far been induced in anthropoid apes. The time of appearance of these artificial tumors apparently is correlated with the average length of life of the animal. Tumors can be produced in mice in 3 or 4 weeks; in rats a longer time is required; in guinea pigs, in 6 or 8 months, and so on. In human beings tar and oil cancers require 10 or 15 years' exposure before they appear. Some years ago a Japanese group of workers showed that the feeding of rats with some azo compounds which have no relationship to the highly carcinogenic phenanthrene group will produce cancer of the liver in white rats. Immediately after publication attempts were made to confirm this in this country, but tumors were not produced. A re-study of the situation showed that the animals used by the Japanese were fed on a diet which was very poor in vitamins and that the production of cancer was correlated not only with the chemical, but with an avitaminosis, chiefly of riboflavin. A careful review of some phases of this situation has been carried out by Eugene L. Opie (*Journal of Experimental Medicine* 80: 219–246, 1944). The chemical which he used was what is known commercially as butter yellow, and chemically as para dimethyl aminoazobenzene. The work revealed that the situation is much more complicated than was at first thought, because it was originally believed that the chemical produced a cirrhosis of the liver first and that the cancer developed on the basis of the cirrhosis. This is what occurs very often in human beings. But the butter yellow produced liver tumors in the rat in the absence of cirrhosis though when the diet was modified so that cirrhosis was produced by an avitaminosis then the frequency of the tumors was greatly increased and in proportion to the severity of the cirrhosis. It was also noted that the presence of fat in the diet accelerates the production of

liver tumors with this chemical and that when the quantity of fat is very small, few tumors are produced. Apparently also some substance in the rice favors the production of cirrhosis and hepatic tumors in rats. The popular idea of cirrhosis of the liver in human beings has been that it is the result of inordinate and long-continued consumption of alcohol. The administration of alcohol does not often cause cirrhosis in animals. Also cirrhosis has been induced in man following acute tropical jaundice. There are those who do not believe that human cirrhosis is caused by alcohol, but it has been noted that during the First World War, when alcohol ceased to be accessible in Germany, that cirrhosis went with it. Such studies amply show the complicated situation which lies behind the appearance of tumors in animals and also in man. It is well known that alpha naphthylamine will produce cancer of the bladder in man and dogs. Why this locality is chosen by the chemical agent for its activity is scarcely possible to say, any more than it has been possible to solve the problem of why in Java the Chinese die of cancer of the stomach, and the Malays die of cancer of the liver. The Malays have a large amount of cirrhosis, but Mohammedans are supposed to abstain from alcohol. However, the writer has been informed by physicians who practised in Java that this abstention is often somewhat imaginary. The facts however remain. All of this links up with the questions which were discussed in the *Americana Annual* in 1941, where it was mentioned that the administration of lipoid substances extracted from normal human and animal tissues when injected into mice gave rise to cancer. There is no reason to think that human cancer is due to the lipoids; as in the human body they are widely distributed and are a necessary part of our food.

Human statistics have shown that malignant tumors are extremely rare in children, and that those which do appear are often of a complex type, which suggests that the growth has arisen from remnants of tissue misplaced during embryonic development. Cancer of the ordinary type which appears in adults is rarely seen. To test this point Smith and Rous (Smith, William E., and Rous, Peyton, *Journal of Experimental Medicine,* 81: 621, 1945) carried on a series of elaborate experiments in which fetal skin contaminated with a carcinogenic substance, methylcholanthrene, was embedded in the muscle tissue of adult mice. In these buried particles of epidermis cancer developed, and it was also possible in further experiments to obtain malignant tumors in fragments of embryo stomach and other organs. This explains the rarity of neoplasms occurring at birth or shortly afterward, which is due to the considerable length of time required for a tumor to develop under any circumstances, and not to any lack of capacity of the cells of the embryo itself to undergo malignant change.

Atomic Therapy.—The atomic bomb has greatly excited not only the public but also the newspaper writers and physicists and in many of the articles which have been published on the bomb it is broadly hinted that this discovery will very probably be of greatest value in the treatment of cancer. This attitude is apparently based upon the idea that the more destructive the dose of radiation of any type may be, the better it is in the treatment of cancer, while as a matter of fact, this is not true. The cyclotron beam was also supposed to be valuable and it was expected that patients would be exposed to the direct beams of neutrons produced by this machine. Also the high-voltage generators, accelerating high speed electrons instead of deuterons, have been received with acclaim by the physicists as offering valuable material for cancer therapy. But a beam of electrons is just what is not wanted in such treatment, as they are highly destructive, as was found by the early workers with radium, and every precaution is now taken in practical treatment to screen off the particle rays, both alpha and beta, and use only the light, or gamma, rays. The after-effects of the atomic bomb are instructive as the delayed deaths of the Japanese who were not near the point of explosion obviously were due to gamma ray injury to the blood-forming organs. The very short-wave length of these gamma rays and possibly some of the accompanying neutrons make them very efficient in such destructive action, and the fact that some people died very rapidly and that some lived for a number of weeks is exactly what is observed when a group of rats is given an overdose of X-ray. In the early days the attempt was made to measure X-ray by the killing effect on small animals, but the spread in the deaths was so great that no definite lethal point could be found. The reason for this is that some animals die from one type of X-ray injury, which may be rapid, and others die at irregular intervals from anemia and destruction of the white blood corpuscles of the body, etc., and these deaths may not occur even in small short-lived animals for several weeks or more. An excellent letter from the conservative side is that of Dr. J. H. Lawrence (*Journal of the American Medical Association* 129: 91, 1945), who has had extensive experience with the use of various types of radiation both in animals and human beings, and with various types of radioactive substances produced by the great cyclotron at Berkeley, Calif. He points out that the physiological application of small quantities of these radioactive elements has been very instructive in tracing about the body the various elements which compose the human structure. It has been extremely interesting to know that the calcium phosphate of the bones, instead of being fixed, as one assumes, is really undergoing active breakdown, resorption and replacement; that the thyroid gland fixes iodine, but that the healthy gland takes up more iodine than a carcinoma of the thyroid, which takes up almost none; hence the healthy gland was destroyed and the cancer untouched when large doses were given. Radio strontium has been used on bone tumors as strontium replaces the calcium of the bone, but no cure was obtained. In leukemia the use of radio phosphorus has proved extremely difficult to control, and there have been a number of deaths due to the active destruction of the white cells, the danger of which was pointed out by W. Falta in a monograph published in 1918 (*The Treatment of Disease with Radioactive Substances*). The radioactive substance which he used was thorium X, and he advised abandonment of such treatment. Lawrence also calls attention to the bone tumors which have developed in man and animals after swallowing radium. The chief difficulty is that once the solution of a radioactive substance is injected, there is no way of neutralizing it, or removing it rapidly from the body, should acute poisoning result.

FRANCIS CARTER WOOD,
Emeritus Professor of Cancer Research, Columbia University; Director, Department of Pathology, St. Luke's Hospital, New York.

CANDIA. See CRETE.

CANNON, Walter Bradford, American physiologist: b. Prairie du Chien, Wis., Oct. 19, 1871; d. Franklin, N.H., Oct. 1, 1945. George Higginson professor of psychology at the Harvard Medical School from 1906 until his retirement in 1942, Dr. Cannon was noted for his work in the fields of endocrinology and neurology. Dr. Cannon was graduated from Harvard University in 1896, received his M.A. degree in 1897, and his M.D. degree three years later, when he became an instructor in physiology at that university. As a lieutenant colonel in the United States Army Medical Corps in the First World War, he was principally responsible for solving the problem of traumatic shock, the reaction or disturbance in the human system after a person has been wounded or injured. It was established by Dr. Cannon and his American, British, and French associates that the damaged or dead tissues became toxic, causing an increased permeability of the smallest blood vessels resulting in the loss through their walls of qualities of the blood that should be in circulation. Returning to Harvard at the end of the war, he continued his research work and in 1931 announced his discovery of a hitherto unknown adrenalin-like hormone which he called sympathin. Dr. Cannon was the author of *Bodily Changes in Pain, Hunger, Fear, and Rage* (1915), a standard reference work on the subject.

CAPE OF GOOD HOPE PROVINCE. See SOUTH AFRICA, UNION OF.

CAPE VERDE ISLANDS. See PORTUGUESE COLONIAL EMPIRE.

CARBON BLACK. Increasing demand for synthetic rubber compounding, particularly in the late months of 1944, lifted sales and production of carbon black to new peaks, according to the United States Bureau of Mines. Production for the year gained 35 per cent over 1943 to 801,860,000 pounds, or 207,795,000 pounds above the old high in 1941. Total sales expanded 49 per cent over 1943 to 937,430,000 pounds and were 135,570,000 pounds more than production. Producers stocks were therefore depleted to 69,243,000 pounds at the end of 1944, the lowest level since 1928, and continued to shrink in the first quarter of 1945. The output by contact processes increased 9 per cent in 1944, following a three year decline, but was 17 per cent below the record of 1940. Furnace black production continued to grow rapidly, increasing 81 per cent over 1943 to 387,184,000 pounds and equaling 48 per cent of the total production of carbon black in 1944, compared with 36 per cent in 1943. Record sales to rubber companies of 738,029,000 pounds accounted for 79 per cent of the 1944 total.

CARIBBEAN COMMISSION, Anglo-American. See ANGLO-AMERICAN CARIBBEAN COMMISSION.

CARNEGIE CORPORATION OF NEW YORK. A trust established by the late Andrew Carnegie in 1911 for "the advancement and diffusion of knowledge and understanding among the people of the United States and the British Dominions and Colonies." Its endowment consists of two funds totaling some $135,000,000, one of which, $10,000,000, is applicable in the British Dominions and Colonies. The income only is subject to the disposal of the trustees. On Sept. 30, 1945, the total assets of the corporation were $170,379,323. Of this. the sum of $135,336,868 represented the endowment and legacy which compose the permanent and major income-producing funds given by Mr. Carnegie to the corporation. The additional assets cover unpaid obligations other than those charged to future income and also provide a margin of protection against depreciation in the market value of securities. The income for the fiscal year 1944–45 was $3,989,705 in the Main Endowment Fund, applicable in the United States, and $356,618 in the fund applicable in the British Dominions and Colonies. The income in the larger fund was equivalent to 2.59 per cent on the investment in securities and the income in the smaller fund, to 2.60 per cent. Appropriations for the 1944–45 fiscal year were: Carnegie agencies, $175,000; colleges and universities, $85,000; general agencies, $729,500; various agencies, $13,000; total, $1,002,500, of which $990,000 was from the Main Endowment Fund and $12,500 from the British Dominions and Colonies Fund. In the four-year period ended Sept. 30, 1945, the corporation devoted $2,771,867 to undertakings directly connected with the national emergency. Devereux C. Josephs was elected president to succeed Walter A. Jessup, who died in 1944; he assumed office on June 1, 1945. Other officers of administration are: Robert M. Lester, secretary; C. Herbert Lee, treasurer; E. A. Farintosh, comptroller. The corporation's offices are at 522 Fifth Avenue, New York 18, N.Y.

DURAND R. MILLER,
Record Clerk, Carnegie Corporation.

CARNEGIE INSTITUTION OF WASHINGTON. An organization founded in 1902 by Andrew Carnegie "to encourage in the broadest and most liberal manner investigation, research, and discovery, and the application of knowledge to the improvement of mankind." Its major activities in 1945 were carried on through the following divisions and departments: Astronomy: Mount Wilson Observatory (Pasadena, Calif.); Terrestrial Sciences: Geophysical Laboratory and Department of Terrestrial Magnetism (Washington, D.C.); Biological Sciences: Division of Plant Biology (Stanford University, Calif.), Department of Embryology (Baltimore, Md.), Department of Genetics (Cold Spring Harbor, Long Island, N.Y.), and Nutrition Laboratory (Boston, Mass.); Historical Research: Studies in aboriginal and pre-Columbian American history, and in the history of science with headquarters in Cambridge, Mass.

The institution is an operating organization for fundamental research, primarily in fields of the physical and biological sciences. It seeks to concentrate its attention on specific problems, with shift of emphasis from time to time to meet more pressing needs of research as they develop with increase of knowledge. Under normal conditions means are also available occasionally whereby individuals or small groups of investigators may undertake and carry to completion special studies which have relation to established research activities of departments and divisions.

Income on investments for the year 1945 amounted approximately to $1,300,000, which was required for support and maintenance of major projects undertaken by the institution, and for aid in war projects. Results of work were made known through technical and scientific journals, the *Year Book*, and a series of scientific monographs. The last *Year Book* of the institution appeared in January 1946, and contained accounts of research activities of the institution for the year ended June 30, 1945. To date, the institution has issued over 800 monographic publications. The

customary programs of institution exhibits and lectures were again omitted in 1945.

Dr. Vannevar Bush is president of the institution. The office of administration is located at Sixteenth and P Sts., Washington 5, D.C.

CAROLINE ISLANDS. See JAPANESE SOUTH SEA ISLANDS.

CARPATHO-UKRAINE. See RUTHENIA.

CASSEL (Karl), Gustav, Swedish economist and author: b. Stockholm, Sweden, Oct. 20, 1866; d. there, Jan. 14, 1945. One of the world's outstanding authorities on monetary and international economic matters, Professor Cassel was concerned with translating the effect of monetary and economic changes into terms of social purport. He was graduated from Uppsala University in 1895 and received various honorary degrees. He became professor of political economy and financial science at Stockholm University in 1904. In 1920, his *Memorandum on the World's Monetary Problems* won him international recognition, and the next year he submitted a paper on the same subject to the League of Nations. He served on the Swedish delegation to the International Economic Conference held at Genoa in 1922, and that same year was engaged by Soviet Russia as adviser to the then newly created Russian State Bank. He represented Sweden at the International Chamber of Commerce meetings in London, 1921; Rome, 1923; Brussels, 1925; Stockholm, 1927; and Amsterdam, 1929. At the invitation of the banking committee of the House of Representatives, he came to the United States in 1928 to give his opinions on the stabilization of the dollar. During this visit, he lectured at Columbia and other leading colleges and universities.

Appointed to the Royal Swedish Academy of Science in 1914, Professor Cassel received the Gold Medal of the academy in 1922, and became its president in 1926. In 1933, he became professor emeritus at Stockholm University, and was appointed expert on tax matters and financial questions for the Department of Finance of the Swedish government.

He was author of *Money and Foreign Exchange After 1914* (1922); *Fundamental Thoughts in Economics* (1925); *Post-war Monetary Stabilization* (1928); *The Crisis in the World's Monetary System* (1932); *On Quantitative Thinking in Economics* (1935); *The Downfall of the Gold Standard* (1936); *Autobiography,* 2 vols., in Swedish (1940–41).

CASSIRER, Ernst, German philosopher: b. Breslau, Germany, 1874; d. New York City, April 13, 1945. Noted for his contributions to the philosophy of culture, the theory of language, the history of transcendental philosophy, and the theory of scientific knowledge, Dr. Cassirer was one of the leading philosophers of the contemporary period. After attending the Breslau Gymnasium, Dr. Cassirer studied at the Universities of Berlin, Leipzig, Heidelberg, Munich, and Marburg, receiving a Ph.D. degree from the latter institution in 1899. He taught philosophy at the University of Berlin from 1905 to 1919, when he was appointed professor of philosophy at the University of Hamburg, where he also served for some time as rector. He was ousted from this post in 1933 under the Aryan and political-conformity sections of the Hitler Civil Service Act, left Germany, and lectured for two years at All Saints College, Oxford University. In 1936 he became professor of philosophy at the University of Gothenburg in Sweden. Upon his arrival in the United States in 1941, he was made visiting professor of philosophy at Yale University, where he remained until 1944, when he was appointed a visiting professor of philosophy at Columbia University.

Dr. Cassirer held an honorary doctor of laws degree from the University of Glasgow, and an honorary Ph.D. degree from the University of Gothenburg. He was the author of more than 100 books and articles in German and English. Among his works are *Das Erkenntnisproblem in der Philosophie und Wissenschaft der Neuren Zeit,* 3 vols. (1905; 1906; 1920); *Philosophie der Symbolischen Formen,* 3 vols. (1923–29); *Determinismus und Indeterminismus in der Modernen Physik* (1937); and *An Essay on Man* (1944).

CASUALTY INSURANCE. See INSURANCE.

CATHOLIC CHURCH. See ROMAN CATHOLIC CHURCH.

CATHOLIC WELFARE CONFERENCE, National. Established in 1919, the National Catholic Welfare Conference is an organization of the members of the Catholic Hierarchy of the United States for the purposes specified in the Brief "Communes" issued by Pope Benedict XV, April 10, 1919, and in the Letter of Pope Pius XI, of August 10, 1927. It is not a council or legislative assembly, as contemplated by the Sacred Canons of the church and therefore, the resolutions of the bishops at the meetings of the National Catholic Welfare Conference do not have the force of law. Every bishop may make use of any service offered by the conference through its departments, committees, general secretary, and staff officers at the national headquarters, 1312 Massachusetts Avenue, Washington 5, D.C.

The conference is incorporated under the laws of the District of Columbia and has for its objects the unifying, co-ordinating and organizing of the Catholic people of the United States in works of education, social welfare, immigrant aid, civic education and other activities. The conference is administered by a board composed of ten bishops elected at the annual meeting of the Hierarchy of the United States to serve for the term of one year.

Active co-ordinating officials, serving the Administrative Board, are the general secretary, Very Rev. Msgr. Howard J. Carroll, S.T.D., the assistant general secretary, Rev. Paul F. Tanner, and the assistant to the general secretary, Rev. Philip J. Kenney.

HENRY P. LEFEBURE,
Business Manager, NCWC.

CAUCASUS, kô'kà-sŭs. General name for the extreme southeast portion of the European section of the Union of Soviet Socialist Republics, a region which lies between the Black and Caspian seas and borders Iran and Asiatic Turkey on the south. This isthmus, connecting Europe and Asia, is divided by the main Caucasian mountain range, which extends east to west, into the North Caucasus, which is part of the Russian Soviet Federated Socialist Republic (q.v.), and the Transcaucasus. After the downfall of the Russian Empire in 1917, three independent republics were set up in the Transcaucasus—Azerbaidzhan, Armenia, and Georgia, all three federating later with the USSR as the Transcaucasian Soviet Federated Socialist Republic. Under the Soviet Constitution of 1936, the Transcaucasian Republic

was again separated into the former three independent republics.

The Caucasus was the scene of heavy fighting between Soviet and Axis forces during the late fall of 1942. The Germans, attempting to gain control of Soviet oilfields, drove into the Caucasus as far as Nalchik, about 40 miles northwest of the Grozny oilfields, before they were halted and driven out by the Red Army.

CAVIGLIA, Enrico, Italian Army officer: b. Finale Marina, near Savona, Italy, May 4, 1862; d. there, March 22, 1945. During the First World War, it was Marshal Caviglia's brilliant strategy in the notable campaign of Vittorio Veneto which defeated the Austrians in 1918, and led to the armistice in that theater. Educated at the Turin Military Academy, Marshal Caviglia took part in the Eritrean War in 1888–90 and in 1896–98; served as Italian observer in the Russo-Japanese War; and as commander during the Tripolitan War in 1911–12. In July 1917 he was given command of the 24th Corps which broke through the Austrian lines on Bainsizza plateau; and in June 1918, he was chosen to command the Eighth Army which participated in the final victory of Vittorio Veneto. From January to June 1919 he served as minister of war, and in November of that year was promoted army general. During 1920 he commanded Italian forces which closed a blockade about the late Gabrielle D'Annunzio's legionnaires in Fiume, bombarded the city, and forced D'Annunzio to capitulate after he attempted to seize Fiume in contravention of the First World War Treaty of Rapallo. Caviglia was made field marshal in 1926. He eschewed Fascist politics, and in 1943 Marshal Pietro Badoglio is said to have sought his aid in formulating a plan to oust Mussolini.

CAYMAN ISLANDS. See JAMAICA.

CELEBES. See NETHERLANDS INDIES.

CEMENT. The decline in production and demand for cements, which began in 1943, continued through 1944, according to the United States Bureau of Mines. Total production of 92,152,399 barrels of hydraulic cements was 32 per cent below the 1943 figure. This reduction results from respective decreases of 32 per cent in the output of portland cement and of a grouping of all other hydraulic cements (natural, masonry, puzzolan, and hydraulic lime). In the portland cement industry the rate of operations was 38 per cent, and in the others 36 per cent of productive capacity in 1944. Mill shipments were 26 per cent below 1943 volume and totaled 95,592,155 barrels. Demand for portland cement and the group of all other hydraulic cements, as gauged by shipments, declined nearly one fourth from 1943. Stocks of all hydraulic cements at mills on Dec. 31, 1944, were 19,976,371 barrels, or 15 per cent below the quantity on hand at the close of 1943. The average net mill realization per barrel of portland cement increased 2 cents over 1943 to $1.59 in 1944, but that for all other hydraulic cements dropped 4 cents to $1.24 in 1944.

CENTRAL AMERICA. See COSTA RICA; GUATEMALA; HONDURAS; HONDURAS, BRITISH; NICARAGUA; PANAMA; PANAMA CANAL ZONE; SALVADOR (EL SALVADOR).

CEYLON. A British island colony in the Indian Ocean south of India. With outlying islands, the area is 25,332 square miles, and the population was estimated in 1943 at 6,197,000. The capital and principal seaport is Colombo (pop. 345,000); other towns include Jaffna (47,708), Galle (38,500), and Kandy (37,147).

The *Maldive Islands,* a dependency of Ceylon, comprise a group of 13 coral atolls 400 miles southwest of the colony (pop. 93,000). It is administered from Malé, the capital, by a sultan ("Lord of the Thousand Isles") with the aid of a People's Assembly, most members of which are elected. Dried fish, cowrie shells, coconut coir, and tortoise shell are the principal exports. In July 1945 it was disclosed that three months before the attack on Pearl Harbor in 1941 a force of British marines was landed secretly on Addu Atoll, southernmost of the group, to construct a port and airbase; subsequently the convoy route to Australia was protected from here, and operations were carried out against the Japanese Navy.

People.—While some 70 races are found in Ceylon, Singhalese constitute more than half the inhabitants and Tamils one quarter, most of the latter having migrated from India for work on the plantations; the others, besides whites, include Burghers (a mixed strain of natives, Dutch, and Portuguese), Moors, and Malays. Most of the Singhalese are Buddhists, and the Tamils are Hindus; there are lesser numbers of Moslems and Christians. Education is free in vernacular schools conducted by the government (in 1943, 2,172 schools with 242,999 pupils) or in receipt of state aid (1,916, with 242,806 pupils); fees are charged in English and bi-lingual schools (394, with 76,360 pupils). There are 142 vocational schools; and in Colombo, a Royal College, Teachers Training College, and Technical College. The Ceylon Medical College and Ceylon University College were consolidated in 1942 as the University of Ceylon (996 students in 1944–45).

Government.—A governor (Sir Henry Moore appointed Dec. 4, 1944) administers the colony with the aid of 3 officers of state (ex officio) and a State Council having both legislative and executive functions. The State Council has 61 members (the 3 officers of state, 8 nominated officials, and 50 elected by universal adult suffrage on a territorial basis); 7 elected members are chairmen of 7 executive committees and ministers for the subjects concerned, and with the 3 officers of state they constitute a board of ministers which prepares the annual estimates of revenue and expenditure. Because of diverse racial interests the political situation is complex and unsatisfactory to most. In May 1943 the British government undertook to meet the demand for complete self-government, and in 1944 dispatched a Royal Commission under Lord Soulbury to examine proposals on the spot. Meanwhile, before that body had made its report, the State Council drafted a proposed constitution of the dominion type for Ceylon. The estimated revenue for 1944–45 was put at Rs.266,432,000, and expenditure was expected to amount to Rs.251,883,055.

Production.—The crops of greatest economic importance are tea (549,571 acres) and rubber (637,739 acres); despite wartime difficulties and poor weather conditions, production in 1944 was close to normal prewar level (tea, 112,000 tons in 1940; rubber, 150,000 tons in 1943). Coconuts occupy the largest cultivated area (1,238,000 acres), and other acreages under crops include rice (850,000), native foodstuffs (140,000), and arecanuts (69,000); among other crops are palmyra, cacao, citronella, cinnamon, tobacco, cotton and cardamoms. Cultivation of food crops on plantations became compulsory on Jan. 1,

1943. The government began development in 1944 of a commercial plantation of cinchona at an estimated cost of Rs.1,500,000, and undertook a study of sericulture, silkworm eggs being imported from Mysore, India.

Graphite, ilmenite, vanadium, and monazite are mined, and quarries of small gems yield sapphires, rubies, moonstones, cat's-eyes, and other semi-precious stones. Numerous new industries were started during the war, including steel-rolling, cement making, and the manufacture of cigarettes and cheroots; fiber of wild hanna (aloe) is used for spinning twine and weaving mats. Native industries are pottery, metal and lacquer work, basket making, and gold, silver, brass, ivory, and tortoise-shell work.

The economic and financial conditions in 1944 were highly satisfactory. Both imports and exports attained record figures, the former reaching Rs.500,000,000 and the latter Rs.617,000,000; reexports were valued at an additional Rs.60,000,000, also a record. Exports to the United States far exceeded imports therefrom. Imports consisted principally of cotton piece goods, foodstuffs, coal and coke, liquors, sugar, fertilizers, and petroleum products. Since 1941 the unit of currency has been the Ceylon rupee, worth $0.301202 in 1944.

Communications.—In 1944 there were 960 miles of railroad open for traffic (843 miles of 5 foot 6 inch gauge, and 117 miles of 2 foot 6 inch); highways exceeded 19,000 miles, of which 5,633 miles were fit for automobile traffic throughout the year. It was disclosed in 1945 that since May 1943 aircraft have regularly covered the route from Ceylon to Western Australia (from July of that year operated by the Qantas Airline of Australia), the longest nonstop flight in the world; passengers are presented with a "certificate of the double sunrise," for the sun rises twice during 19 hours of the flight.

CHACO, El, ĕl chä'kô. A region of South America which includes parts of Argentina, Bolivia, and Paraguay. It may be divided into El Gran (grän) Chaco, a territory claimed largely by Paraguay and Bolivia, and El Chaco, a territory lying within Argentina.

It is a low-lying alluvial plain with an area of approximately 100,000 square miles, claimed principally by Paraguay and Bolivia. It is bounded on the east by the rivers Paraná and Paraguay and on the south and west by the Argentine provinces and the Republic of Bolivia. After the Chaco War over the boundary between Bolivia and Paraguay (1932–35), a treaty of peace was signed at Buenos Aires on July 21, 1938. It was agreed by both countries that their boundary in the Chaco area should be fixed by the presidents of six American republics, including the United States. On Oct. 10, 1938, the six plenipotentiary delegates awarded approximately 69,000 square miles of the territory to Paraguay, the remainder to Bolivia. Diplomatic relations have been restored between the two countries. Paraguayan population in the Chaco is estimated at 45,860, of whom about 8,000 are native Indians.

CHAD. See FRENCH EQUATORIAL AFRICA.

CHAMBER OF COMMERCE OF THE UNITED STATES. In a year almost equally divided between war and peace, the activities of the Chamber of Commerce of the United States were of a dual nature. Until the surrender of Japan in mid-August, first priority in its activities was given to facilitating in every possible way what was then the most important job of American industry—the full and unstinted supply of everything needed by the armed services. As the organization representing American business men as a whole in Washington, the national chamber found innumerable ways of expediting this essential activity.

In its thinking the national chamber recognized that reconversion, to be successful, must involve nothing less than a major reconstruction and expansion of the country's industrial economy. A mere restoration of the prewar pattern of production and consumption would obviously be inadequate to provide useful employment for a labor force grown to unprecedented size, supplemented by millions of returning war veterans. The new aim must be a volume of production and consumption from 30 to 50 per cent greater than ever before known in time of peace.

In the latter part of the year, the efforts of the national chamber were directed at the early and complete removal of restrictions on production, sales, raw materials, financing, and all other branches of business activity which had necessarily been imposed during the war emergency, and also at the promotion of better understanding and co-operation among the various elements of the population.

BEN H. LAMBE,
Manager, Publicity Department, Chamber of Commerce of the United States.

CHANNEL ISLANDS. A group in the English Channel, 10 to 30 miles from the French Normandy coast, part of the British realm since 1066. The islands, which have an aggregate area of 75 square miles, comprise Jersey (28,717 acres), Guernsey (15,654 acres), Alderney (1,962 acres), Great Sark (1,035 acres), Herm (320 acres), Little Sark (239 acres), Brechou (74 acres), Jethou (44 acres), and Lihou (38 acres). At the last census (1931), the total population numbered 93,205, Jersey having 50,462 inhabitants; Guernsey, Herm, and Jethou, 40,643; Alderney, 1,521; and Sark, Brechou, and Lihou, 579. With the surrender of France in 1940 the islands were demilitarized and partly evacuated, and they remained in German occupation until the war ended in 1945. Jersey is administered by a lieutenant governor, who is assisted by a legislature termed the States Assembly, and a like system applies to Guernsey (of which the other islands are dependencies); a "bailiff" presides over both legislatures and also heads the judiciary, termed the Royal Court. While French is the official language, English is permissible in the legislatures. In 1939 the revenue of the Channel Islands amounted to £953,681, and the expenditure was £964,315; the public debt stood at £2,785,704. The principal exports are tomatoes, potatoes, fruit, flowers, and granite. The islands have celebrated breeds of cattle, principally Jerseys and Guernseys. The chief town of Jersey is Saint Hélier, on the south side, and Saint Peter Port is the principal town of Guernsey.

The German garrison of the Channel Islands, numbering some 27,500 men, was surrendered to British forces by Admiral Hoffmeyer on May 12, 1945, and a civil affairs unit was landed to help in the task of reconstruction. Hundreds of houses had been damaged or destroyed in Allied bombing raids, and the islanders were found lacking clothing, food, and all foodstuffs save vegetables. German marks were withdrawn and replaced by sterling currency, and food was rationed on a scale about 25 per cent higher than in Great

Britain. Some of the islands, notably Alderney, had been used for the imprisonment of Russian soldiers and the interment of Jews, about 1,000 of them having been murdered by starvation and beatings. Considerable criticism was voiced in Britain concerning the lengths to which some local officials had gone in co-operating with the Germans; in a statement issued on July 18, the (British) Ministry of Information commented that "during five years of occupation such as these people have undergone, when there was always one German for every three islanders, and sometimes many more, it is impossible to avoid some degree of apparent collaboration."

CHAPULTEPEC DECLARATION. See INTER-AMERICAN AFFAIRS; PAN AMERICAN AFFAIRS; WORLD POLITICS.

CHAUVEL, SIR Henry George, Australian Army officer: b. New South Wales, Australia, April 16, 1865; d. Melbourne, Australia, March 4, 1945. A hero of the Palestine campaign during the First World War, General Chauvel was chief of the Australian General Staff from 1923 to 1930, and in the Second World War served as inspector in chief of the Australian Home Guard.

After attending Sydney and Toowoomba grammar schools, General Chauvel began his military career in 1886 by joining the New South Wales Cavalry Regiment as a second lieutenant. He distinguished himself in the South African War, and in the First World War, during which he was cited in dispatches nine times; he commanded Australian cavalry in Egypt and Gallipoli, and headed the Desert Mounted Corps from 1917 to 1919 in the Palestine and Syrian campaigns, including the capture of Damascus.

CHEMICAL WEAPONS. See CHEMISTRY.

CHEMISTRY. With the ending of the Second World War the profession of chemistry can pause and take stock not only of its contributions to Allied victory but of advances that can be carried over into the days of peace. When the United States entered the war in December 1941 chemical process industries were well prepared to furnish the materials of war and to expand with increasing needs.

The first great challenge to the chemical profession was the replacement of imported natural rubber with several hundred thousand tons of synthetic products having essentially the same properties and usefulness. This challenge and others not so apparent at first were met promptly and successfully.

In the First World War there were constant sources of uneasiness about the supply of explosives, particularly sodium nitrate and toluene. In this war there was an unfailing and continuously growing and relatively much greater flow of explosives than could have been dreamed of in 1918. The enormous task of supplying two fronts on opposite sides of the world with all the varied material demanded in modern warfare and its storage and protection in the extremes of climate was one which challenged the ingenuity of scientists and engineers. Losses due to time, heat, cold, dryness, and moisture were negligible.

In addition to describing the advances and discoveries of the current year, this article will sum up briefly the progress that was made during the entire period of this nation's participation in the war, in order to give a picture of the chemical industries as they enter the period of reconversion.

In very general terms there is the paradox of greatly reduced and restricted progress in the basic science of chemistry and unbelievable progress in production of almost every material that depends on chemical change. The goal of research in the war period was not advancement in fundamental knowledge, but rather better, faster, and more efficient production of known products by known methods. Where substitutes had to be provided, research under pressure developed these substitutes, but in general there have been relatively few new products or new methods of production.

The total value of manufactured products of the chemical process industries has increased from $11.2 billion dollars in 1939 to an estimated $32 billion dollars in 1944. Leaders in these industries are of the opinion that reconversion to peacetime products can be accomplished with relatively little difficulty. Many new products are planned. There is a considerable amount of accumulated demand which will be felt well into the close of 1946.

With the great increase in manufactured products dependent upon chemistry there has been a serious and disturbing falling off in the rate of production of the chemists and chemical engineers who are vital to these industries. Some members of these professions who entered the armed forces utilized their chemical training and experience, and others did not. Some of the latter made use of their general scientific sense and ability to think, but an unfortunately large number did routine work. Most of these men will return to chemical industry and losses due to their absence will be written off as the cost of war. The most serious loss and one which will be felt for several years to come has been in the interruption of the training of thousands of chemistry and chemical engineering students, many of whom are permanently lost to the profession. Comparatively few students in these fields remained in college in 1944. This break in the process of training scientists and engineers to take the place of older men is most severely felt in the graduate schools. Those who return to their studies at the end of the war will not begin to make up for those who will not be able to begin college training or will not be willing to undertake the seven year journey to a doctor's degree. Not until students in the sciences cease to be drafted and seven years thereafter can the regular process of training research workers be resumed at the former rate.

Chemical Weapons.—In the early days of the war there was considerable anxiety among city dwellers along the Atlantic seaboard regarding possibilities of bombing and gas attacks. Defense preparations were extensive and elaborate. Defense officers were trained and they in turn trained others until several million people were prepared to meet the hazards of incendiaries and toxic gases. This phase passed as Allied superiority in the air made it increasingly evident that Axis planes in force would never reach this continent.

Vast quantities of chemical warfare agents were produced and held in readiness, and masks, protective clothing, neutralizing chemicals and other defense measures were available to American troops. The use of toxic chemicals in this war was negligible, partly because of the certainty of immediate retaliation and partly because modern warfare did not lend itself to this type of attack.

However, the trench mortar, developed in the First World War to throw gas shell, was per-

fected and extensively used with both phosphorus and high-explosive shell. The Chemical Warfare Service was responsible for the development and use of effective screening smokes, large smoke machines laying down dense curtains miles in length. The chief contribution made by this branch of the army was the improved use of incendiary bombs and flame throwers. Fire bombs were commonly made of magnesium, which burns fiercely when sufficiently hot, and were filled with mixtures of thermit, barium nitrate, aluminum powder, and petroleum. Others consisted of jellied gasoline in a pipe equipped with a long strip of cotton gauze. The cloth tail served to slow down the rate of fall of the bomb so that it would not be shattered, but still permitted considerable penetration before a delay fuse set off the explosive charge, which in turn scattered the incendiary material. The range of flame throwers was greatly increased by the use of jellied gasoline and heavier petroleum distillates so that flaming lumps reached their targets with relatively little loss until they were at a point where intense heat was needed. This method of warfare proved tremendously effective against pill boxes and caves.

The products of chemistry that were used for the first time in this war included colored smokes for identification and signalling; colored cloth protected by resins for similar purposes and for camouflage; dyes released in water to attract rescue planes to flyers forced down at sea; and dyes and repellent chemicals to hide and protect men from the attack of sharks.

In the field of explosives, production was rapidly increasing to meet the needs of England and France long before the United States entered the war. Expansion of facilities and improvement of known processes in fixation of atmospheric nitrogen, production of toluene from petroleum distillates, and reduction in time and solvents permitted vast increases in the amount of military explosives that were supplied to meet the rapidly expanding program of invasion and bombing in Europe and the Pacific. More powerful and faster explosives were developed. The use of rockets required a new type of powder which could not be made by the old solvent process. Rocket powders must have a long burning time at uniform rate, must burn without smoke, and must function at low pressure and over a wide temperature range. These requirements were met by adding nitroglycerin to a slurry of cellulose nitrate in water, centrifuging the solids, drying, and shaping into strands, which were examined either by X-rays or by supersonic waves to detect flaws interfering with proper performance. The process of making small arms powder was made more simple and efficient by forming the powder into small globules instead of extruding it as perforated rods which were cut to proper lengths. The "ball-powder" process is said to be five times as fast as the older method. The detonation of ammonium nitrate was made easier by coating grains of this substance with nitrostarch, itself an explosive, and setting off the starch with a booster charge of T.N.T.

The Atomic Bomb.—The basic research on which this new, startling, and revolutionary weapon was developed was done largely by physicists and mathematicians. When the urgency of war made it necessary to design and operate plants for the production of uranium-235 and plutonium on a scale millions of times larger than that of the research laboratory, chemical engineers formed the largest single group of technologists in the entire project. Much of the engineering was entirely unorthodox, which has long been characteristic of chemical engineering operations. Several of the larger chemical firms of the country were associated with manufacturers of mechanical and electrical engineering equipment in building and operating the enormous plants in Tennessee and Washington. Chemists and chemical engineers also were a considerable part of the research staff in New Mexico. The staggering sums spent in the development of the atomic bomb are of the same order of magnitude as those spent in attaining present levels in production of synthetic rubber and aviation gasoline. Like these two gigantic projects, the final success of the atomic bomb was the result of the co-operative efforts of scientists, engineers, and skilled workers from numerous fields.

Protection of War Supplies.—The great varieties of climate, including steaming jungles, salt-laden mists, desert dryness, and intense cold made the shipment and storage of munitions, food, clothing, weapons, and all manner of war supplies extremely difficult. The earlier procedure of coating guns, tanks, and machinery with oil was largely replaced by wrapping with impregnated paper and spraying on tough but readily removable plastics. Shortage of metal and the necessity for thicker and tougher containers were met by employing fiber. Paper bags and cardboard containers were made waterproof by impregnation with asphalt and synthetic resins. Iron and steel machinery suffered little corrosion because their moisture-resisting containers were supplemented and reinforced by efficient drying agents, such as silica gel impregnated with a chemical which changed color before a dangerous humidity could develop.

Instruments and Operating Techniques.—The tremendous increase in production without corresponding increase in operating personnel was due in part to the use of indicating, recording, and controlling instruments. For example, by employing radioactivity and electronics a small instrument carried and operated by one man can measure the thickness of vessel walls and detect points of failure and can also determine the height of liquid in a vessel without access to its interior. The principle involved is that intensity of back-scattered radiation is a measure of wall thickness. As the instrument is moved down the wall of a container of uniform thickness the reading of the microammeter is constant until the liquid level is reached, at which point there is a sudden and marked increase of the radiation.

Such processes as the distillation of fatty acids and of metal vapors, the separation of vitamins from natural products, and the drying of penicillin and blood plasma depend on operation at extremely low pressures such as were formerly obtained only in small equipment in physics laboratories. These extremely low pressures were attained by diffusion pumps, backed up by the more common types of mechanical pumps that remove and discharge the gases removed by the low-pressure pumps. Rapid and uniform heat results from high-frequency electrical oscillations, and this method of heating is finding very extensive use in a great variety of industries. Fruits and vegetables exposed to steam or boiling water even for a short time in the "blanching" process are likely to soften or to lose vitamin C. This can be avoided if these food materials are exposed to high-frequency electrical heat for a few seconds before they are frozen or dehydrated, and

the deactivation of enzymes that destroy vitamins and flavor is equally effective. Electrical heat of this type is particularly adapted to articles of considerable thickness that are being molded or cured under pressure. Initially applied in laminated resin technology, this procedure is being extended to the vulcanization of rubber with saving of time and attaining higher and more uniform quality.

Heavy Chemicals.—A characteristic of chemical process industries is that many of the chemicals which play important parts in them do not appear as finished products. With the great increase in demand for munitions as well as civilian goods, there has been a corresponding increase in the production of what are commonly known as heavy chemicals.

Sulfuric acid, one of the most useful and versatile of heavy chemicals, was produced in 1941 to the extent of 6.86 million tons (100 per cent basis). By 1944 production had increased to 9.09 million tons. In considering the sulfuric acid industry it should be remembered that this chemical may be used several times. It appears first in its most concentrated form and ultimately disappears in processes requiring a dilute and not too pure a material. The largest single use of sulfuric acid, even in the war years, has continued to be in the production of fertilizers. Plant foods in the fertilizer season of 1943–44 contained in terms of thousand tons: nitrogen, 380; phosphorus pentoxide, 758; and potassium oxide, 373, representing increases of 64 per cent, 80 per cent, 59 per cent over the average 1935 to 1939 figures. Increases in caustic soda are represented largely by the electrolytic process with the simultaneous production of chlorine. Total domestic capacity of all nitrogen fixation plants in the United States is of the order of 1.32 million tons, of which less than one half goes into fertilizers. A considerable part of the remainder is consumed in explosives, which are practically all nitrogen compounds. At least a part of this producing capacity may have to be retired with the ending of wartime demands.

Glass and Silicate Materials.—Improvements in the field of glass have been limited largely to specialties that have little resemblance to the usual form of glass products. Tanks made of specially tough glass sheets with joints sealed by glass-fiber tape impregnated with synthetic resins have entered the field formerly occupied by glass-lined equipment. Porthole and searchlight covers and reflectors are made of a case-hardened glass which is said to be practically bulletproof. Glass containing small amounts of didimyium has proved very superior in the shields used by arc welders. Ultraviolet rays are filtered out by a special glass that prevents stratosphere fliers from suffering severe burns. Glasses made from phosphorus pentoxide and small amounts of metal oxides or from practically pure aluminum metaphosphate not only resist the action of hydrofluoric acid but also the effects of weather, and have a low coefficient of expansion. The addition of small amounts of ferrous and ferric oxide gives these glasses the power to absorb both infrared and ultraviolet rays.

Foam and fiber glass products represent the chief improvements in the modern glass industry. Foam glass is made by adding carbon to ground glass of a special composition and heating the mixture to a high temperature. The resulting product is made up of tiny interconnecting cells. Water is taken up in very small amounts and only on the outer surface of an article made of this material, as evidenced by a gain in weight of not more than 2 per cent after 24 hours immersion in water. Foam glass has been used successfully in floats and in life rafts and is a most valuable insulating material.

Glass fibers are used alone and in connection with other materials. Extremely fine fibers with diameters of only a few one hundred thousandths of an inch form a down that has been used in sound-proofing blankets for heavy bombers and also as a heat insulating material. This product would appear to have a future in radio, television, and motion picture industries. Glass fibers of somewhat larger diameters, but still very fine, replace kapok in life jackets. Production of this material has recently reached a rate of one million pounds per month. Glass fibers in the form of a floss are being used as separators between the plates of storage batteries, thus releasing further amounts of hard rubber. Such batteries can be shipped fully charged but without acid in order to cut down hazards of handling. Metal baskets packed with coarse glass fibers and stacked in towers take the place of the more expensive bubble-cap columns in certain commercial distilling operations. Thin layers of glass fiber protect catalyst beds from clogging and contamination in oil-cracking operations. Glass fibers impregnated with synthetic resins are used as armor that gives better protection than steel, and by virtue of being distributed as plates in pockets of vests and other garments can be easily discarded. A somewhat similar material deadens sound and protects against cold in stratosphere planes. Asbestos and glass fibers are woven together into a coarse fabric that resists abrasion, corrosion, and heat. Glass cloth coated with rubber combines high tensile strength with resistance to many solvents, oils, and chemicals. Synthetic resins reinforced by glass fibers have exceptionally high strength and impact resistance.

Clay products that resist the breaking effect of sudden application of heat or cold because of high thermal conductivity add greatly to the use of chemical stoneware equipment in industries dependent on such material for high strength and impact resistance to the action of chemicals.

Metals.—The production of ingot steel reached 98.5 per cent of the capacity of United States plants in 1944, or a total of nearly 90 million tons. This required a very considerable increase in the coking of bituminous coal. Something like 18 per cent of all soft coal was carbonized for the production of steel-mill coke. By-product coke ovens now have a capacity of nearly 74 million tons, so that only a few million tons of coke need to be furnished by beehive ovens. With a shortage of certain coking coals and surplus of anthracite fines some plants found it possible to mix from 3 per cent to 5 per cent of the hard-coal fines with the soft coal usually fed exclusively to coke ovens. Due to variations in types of ovens and of coal supplies this practice has not been general. About 12 per cent of all steel is of the type known as "alloy-steel." By proper treatment much of the so-called "emergency steel" has been made equivalent to the older steels. Within given ranges of carbon content the chemical composition of steel is of much less importance than the proper regulation of temperatures. The steel industry has profited by improved mechanical equipment and better methods of heating. In this industry high-frequency induction heating has begun to play a part. Small quantities of boron of the order of a few ten thousandths of 1 per cent have markedly increased hardening depth.

The other metals, grouped together under the general term "nonferrous metals" and representing a combined production of only a small fraction of that of iron, are nevertheless very important, particularly in meeting certain special war demands. Attention has been directed to a large extent to the light metals, aluminum and magnesium. The strenuous efforts to build up their production resulted in 1945 in accumulation of a considerable surplus of both metals and very drastic curtailments in many of the plants. The peak of peacetime production of aluminum was of the order of 164,000 tons, but stimulus of war needs in this country resulted in a designed yearly capacity of nearly 1,100,000 tons.

Earlier in the war there was considerable alarm over the possible cutting off of imports of high-grade aluminum ore from South America to supplement dwindling supplies in this country. A process was developed and operated to a considerable extent which utilized some of the accumulated "red muds," waste products in the process of producing pure alumina from bauxite. This material is as rich in alumina as low-grade ores, silica in both interfering with and preventing the recovery of alumina. By heating these wastes with lime and soda in kilns the silica is made to combine with the lime to form an insoluble calcium silicate, leaving the alumina as a soluble sodium aluminate. The solution of aluminate is treated in the same way as in the usual process for high-grade ore. Another process that added to the supply of practically pure aluminum depended on the digestion of scrap metal, composed either in part or entirely of aluminum alloys, with a solution of caustic soda. A solution of sodium aluminate is obtained which is practically free from other metals, both those mechanically mixed with aluminum and those alloyed with this metal. Alumina was recovered from this solution and combined with the usual cell feed for production of the pure metal.

Until comparatively recent years the annual production of magnesium was between 2,000 and 3,000 tons. By 1940 this figure had risen well above 30,000 tons. With the entrance of the United States into the war magnesium plants were built very rapidly up to a manufacturing capacity of 300,000 tons. Actual production in 1943 was 190,000 tons and in 1944 the annual rate was estimated to be 246,000 tons. Peacetime demands will probably be nearer the 1940 figure. Fully 80 per cent of all magnesium was produced by the electrolytic process, using fused magnesium chloride. Thermal processes included reduction of magnesium oxide by carbon and by ferrosilicon, the latter process operating at a very low pressure. Magnesium chloride was obtained from sea water and from magnesium oxide that was treated with chlorine and carbon.

The amount of lead ore being mined has decreased during the war period, probably because of manpower shortages. About half as much lead was imported in 1944 as that obtained from domestic ores, and there was also some importation of lead ores. Metal recovered from scrap amounts to about three fourths that produced from ore. Storage batteries account for fully one third of all lead metal. Other important uses include cable covering, paint pigments, and lead tetraethyl for preventing knock in internal-combustion engines. While lead has largely given way to steel in projectiles, an easily broken and relatively harmless bullet is now in use for target practice against planes. This bullet is made of lead powder with synthetic resin as a binder, the mixture being extruded into cavity molds. Such projectiles withstand the shock of firing, but disintegrate on the target, their impacts being electronically recorded.

Nickel, chromium, tungsten, and cobalt, together with carbon and iron, make up a new type of hard-facing alloy for automotive valves. This alloy offers excellent resistance to the action of leaded fuels at high temperatures.

In the field of corrosion prevention it has been long known that zinc chromate has high protective powers for steel but is not directly applicable to metal surfaces. By plating the steel with zinc or cadmium and subsequently treating the plated surface with chromium compounds, a very thin layer of zinc or cadmium chromate is formed with only slight removal of the metal that is being coated. The protective coating is quite ductile and stands rough handling. Its natural color varies from olive drab to mouse gray, but by the use of dyes almost any desired color can be obtained. Metals coated with selenium are protected against corrosion by sea water.

During the war period additional supplies of metallic calcium were needed for the production of calcium hydride, a portable source of hydrogen for observation balloons. Since neither hydrogen nor helium are available in liquid form in cylinders, a compact solid that will produce hydrogen on contact with water has considerable military value. Calcium is ordinarily made by the electrolysis of fused calcium chloride, but a new process, utilizing the general techniques of the ferrosilicon process for magnesium, has proved successful. Calcium oxide and aluminum powder (a waste product in the purification of aluminum by volatilization) are mixed and formed into briquettes which are charged into nickel-chromium retorts. These are under very low pressure as they are heated. The pure calcium metal condenses to form a hollow cylinder in the condenser. An extremely thin layer of oxide or nitride is formed on the metal when the vacuum is broken. Other metals are separated by selective condensation.

Powder metallurgy involves molding articles out of metal dust under enormous pressures and heating until the individual grains fuse slightly and are bound together. A new method of preparing finely divided metals for this process depends on their deposition as fine crystals by the passage of an electric current through a bath of fused salts. These crystals require no further grinding and are free from the oxide coating that may characterize reduced metal powders. With proper handling, unwanted metals that are codeposited with the desired metal are removed by reaction with the fused salt bath.

Petroleum.—A very heavy burden has been borne by the petroleum industry during the war period. In addition to furnishing motor fuels and domestic and industrial furnace oils for civilian use, this industry was called upon for vast quantities of fuel oil for warships, transports, and cargo vessels, ordinary gasoline for tanks, trucks, landing craft and military cars, large amounts of Diesel fuel, exceptionally high-grade gasoline for aircraft, toluene for explosives, and butadiene for synthetic rubber. Alcohol from the fermentation of grain shared heavily in the burden of the rubber program.

In spite of ever increasing demands, exploration operations were restricted and crude oil has been drawn from fields at a higher rate than is consistent with the greater ultimate yields. Wells have been sunk to still deeper deposits, some of

them going down for as much as two and one half miles. Special alloys in drill bits have made drilling easier.

Transportation problems were complicated in the earlier part of the war by the presence of numerous Axis submarines along the Atlantic coast. As this menace was removed there came the added demand for supplying the Pacific fleet as well as land operations in that theater of war. The rapid completion of two pipe lines, the "Big Inch" consisting of 1,250 miles of 24 inch pipe with the necessary pumping stations and bringing 300,000 barrels of crude oil daily from the Texas fields, and the "Little Inch," a 20 inch line 1,500 miles long, carrying gasoline from the Gulf-coast refineries to the New York area, helped to solve this problem. In connection with exploration for oil, helium is being used as tracer gas to determine migration of oil and gas in reservoirs. The gas is injected in well bores and determined in gas from adjacent wells with observation of times and concentrations.

Wherever petroleum is handled there is constant danger of fire. The foam system is the chief means of protection. A new type of foam can now be produced by mixing 6 parts of a hydrolyzed protein from soybean meal, protected against bacterial action and oxidation by special chemicals, with 94 parts of water, with the addition of ten times the volume of air. Five gallons of the protein liquid will make 900 gallons of foam, which will stick to vertical as well as to horizontal surfaces.

The chief advances in the petroleum industry have been in the field of high-octane aviation fuels. Practically all the processes and procedures employed by the industry during the war period had been worked out and were either in pilot plant stage or successful operation at the beginning of the war. It remained only for the industry to engage in a vast construction program in order to be able to meet the greatly increased needs of war as well as to supply in restricted amounts the ordinary gasoline for civilian use.

The first major advance in the production of aviation fuel was the introduction of catalysts in the breaking up of heavier hydrocarbons into those more suitable for modern internal combustion engines. At the outset the catalyst, consisting of porous beads, was packed in towers and the heated hydrocarbons were passed through these towers. At intervals the accumulated carbon was burned off in a stream of air. Better contact and more effective conversion were attained when the catalyst was continually moved as it came in contact with the hot hydrocarbon vapors. One process involves dropping the solid catalyst from baffle to baffle in a tower against the rising gases and lifting the solids by bucket elevators to begin the operation anew. The same type of flow is employed as the catalyst is regenerated. Several of the largest catalytic plants in the United States employ a process in which the catalyst in the form of a dust is carried as a suspension in the hydrocarbon vapors. The mixture of dust and gas flows as a fluid and requires very little pumping, the heavier column of dust-laden gas being balanced against a rising column of dust-free gas. Reaction takes place in chambers, the turbulence in these maintaining very even temperatures. Pressures in this process are very low in comparison with the older thermal cracking processes. The catalyst is readily recovered in cyclone collectors backed up by electrostatic separators. Catalytic processes are said to be very versatile, producing at will aviation gasoline, aromatic hydrocarbons for explosives, or olefins for the synthetic rubber industry. The fluid catalyst technique has already been extended to the production of phthalic anhydride from naphthalene, and is very likely to prove useful in chemical industry in general.

Saturated hydrocarbons are now being converted in vast quantities to unsaturated hydrocarbons by catalytic dehydrogenation. On the other hand it is often necessary to add a limited amount of hydrogen to certain reaction products before they are ready for use as aviation fuels. Even in the dehydrogenation operation considerable amounts of hydrogen must be present to control the reaction and to prevent its going too far. A considerable amount of the unsaturated hydrocarbons, mainly butadiene and ethylene, are raw materials for the synthetic rubber industry. Others are starting substances for making gasoline blending agents.

A reaction that has been of great value in the production of the branching chain hydrocarbons so essential in the prevention of knock in internal-combustion engines is known as alkylation. This involves the addition of such isoparaffins as isobutane and isopentane to unsaturated hydrocarbons, mainly butylenes, to form saturated hydrocarbons of the desired structure. Alkylation is accomplished by heat alone or more commonly by sulfuric acid or liquid hydrogen fluoride.

Unsaturated hydrocarbons with short branching chains are caused to polymerize to form longer branching chain hydrocarbons which are liquids. These are hydrogenated to become valuable blending agents for aviation gasoline. Typical among these are iso-octane and triptane. Often two different olefins combine together to form what are known as "dimers." These operations are also carried out either under the influence of heat alone or with the assistance of catalysts containing phosphoric acid, silica, and pyrophosphates.

In order to secure an ample supply of isoparaffins the abundant straight-chain butane and pentane are subjected to mild heating in the presence of hydrogen chloride and aluminum chloride contained in fused antimony chloride. This process is known as isomerization and has greatly increased the production of aviation fuels.

Aromatic hydrocarbons are made from straight-chain paraffins by first causing the formation of cyclic hydrocarbons known as naphthenes or cycloparaffins. These are then robbed of some of their hydrogen by controlled reactions in the presence of hydrogen and catalysts until they become aromatic hydrocarbons of the same type as those gotten from coal gas and coal tar. It is estimated that in order to supply the aromatic hydrocarbon, toluene, for the manufacture of T.N.T., if it could not have been made from petroleum distillates, it would have been necessary to have increased the present coke oven capacity of this country about 300 per cent. Obviously this would have been impossible when it is remembered that a ton of coal yields only about one half gallon of toluene. Other aromatic hydrocarbons such as cumene are excellent blending agents in aviation gasoline. Cumene is made by combining petroleum refinery gases with benzene from coal gases.

These chemical processes just described yield substances of known composition and structure, which are mixed with approximately equal amounts of straight run or cracked gasoline and a little lead tetraethyl to produce aviation gasolines that permit the high speeds necessary in modern warfare. These fuels are entirely un-

suited to present automobile engines, since much smaller quantities of the blending agents are sufficient to make the highest grade gasoline which these engines are capable of using. Future automobile power plants will probably demand increasing quantities of the materials used so abundantly in aviation gasoline, with consequent increase in power and smoothness of operation, so that the developments of the war period will continue to pay dividends in the years to come.

In the meantime motor fuels from petroleum may be increasingly supplemented by products derived from the action of hydrogen on carbon monoxide. Both of these starting substances are readily produced from coke and steam. Such processes were extensively used in Germany during the war period and one company in the United States announces the production of 75 octane gasoline (80 with lead tetraethyl) from the same materials, the source, however, being methane from natural gas.

A hazard of motoring and particularly of aviation is the highly inflammable gasoline in the fuel tanks. A safety gasoline has been developed which will not ignite at ordinary temperatures. Although boiling between 300°F. and 400°F., this fuel has the power of 100 octane gasoline. It consists of catalytically cracked gasoline from which the most volatile material has been removed, blended with a hydrogenated polymerized butylene and heavier alkylated products, to which sufficient lead tetraethyl has been added. This fuel can not be used in present equipment, but requires either a new type of carburetor or direct injection into the engine cylinder.

Diesel engine fuels are now considerably superior to those used before the war period. Extraction with solvents, hydrogenation, and addition of various substances have contributed to this improvement.

Excessive thickening of lubricating oils with cold and thinning with heat is now prevented by the addition of a liquid of the same general chemical nature as acrylic resins but representing a lesser degree of polymerization. This protection is especially necessary for oils used in hydraulic and recoil mechanisms, and will probably be of greatest value to stratosphere planes. Lubricants are often handicapped by a tendency to foam, particularly in locomotive cylinders and in internal combustion engines. This tendency has been increased by the presence of additives to prevent oxidation and sludge formation. Foaming can be greatly reduced by addition of small amounts of polymerized dihydrocarbon silicones, a new use for these interesting silicon derivatives.

Petroleum derivatives have been commonly used to protect machinery against water. A new type of protective liquid of undisclosed composition has been announced recently, the news having been held up since early in the war period because of its importance. This liquid has great penetrative and insulating ability and its viscosity is low. It is a powerful wetting agent and displaces water from metal surfaces. In order to demonstrate the remarkable properties of this liquid insulating agent, an oil-burner motor from a flooded basement was sprayed with this material. The motor ran smoothly and has continued to run for two years while immersed in soapy water.

Sulfuric acid has considerable use in treating petroleum products to bring about removal of undesirable substances. Some of the sulfonates formed during such operations are proving quite useful in lining the molds in which rubber articles are formed. This material is mixed with water before it is applied by spraying, brushing, or dipping. Originally these sulfonates were very dark in color, which limited their use to black goods, but they have been improved so that they may be used with white or light-colored materials.

Paraffin wax, one of the minor products of the petroleum industry, has made a noteworthy contribution to the packaging of war supplies. Something like 80 per cent of the 70 million pounds of paraffin wax is being utilized in waterproofing paper products. Microcrystalline waxes derived from petroleum prevent the cracking and breaking of paraffin coatings. Chlorinated paraffins have reached a chlorine content of 70 per cent as compared with the previous upper limit of about 40 per cent. This material is a resinous solid, most of which is consumed in the treatment of cotton duck to make it more resistant to flame. Linoleum, cable coatings, and lacquers account for smaller amounts of these chlorinated paraffins, which are resistant to many chemicals and which do not cause skin irritation.

Petroleum products are raw materials in a number of chemical process industries. Nearly twice as much of these materials are employed as starting substances as the combined production of the coal distillation industry. Synthetic toluene in the manufacture of T.N.T. and butadiene in the rubber industry have already been referred to. Large quantities of alkyl halides, alcohols, glycols, ketones, acetic anhydride, and many other industrial chemicals have their origin in the petroleum industry. Total production of chemical raw materials from petroleum amounted in 1943 to 1.56 billion pounds.

Oils and Fats.—Since oils and fats are vegetable and animal products, the quantities which can be produced are not as capable of rapid increase as in those industries dependent on natural deposits. A world shortage of these products of agriculture has caused numerous complications in industries dependent on them. Approximately two thirds of these materials are consumed by the food industries. Lard and butter represent two thirds of edible fats and oils, the remaining food requirements being met largely by cottonseed and soybean oils. Reduction in the amount of cotton grown in the United States has caused a decrease in the production of cottonseed oil, and for the first time it is exceeded by soybean oil. The quantity of this food oil, however, has not yet approached the maximum production of cottonseed oil, which amounted to 1.8 billion pounds in 1926.

The chief chemical achievements in this field have to do with paint and varnish oils. The shortage of such oils as tung oil and linseed oil has been partially compensated by the dehydration of castor oil and by fractional separation of fatty acids by distillation and extraction. The unsaturated acids thus separated are esterified with pentaerythritol, which incidentally is a synthetic product made by a reaction between formaldehyde and acetaldehyde.

The soap industry, which accounts for about 20 per cent of the total consumption of fats and oils, has been somewhat handicapped by the shutting off of coconut oil imports. Most of the surface-active agents that function as detergents besides soap are derivatives of oils and fats, but some can be made from petroleum derivatives, and to a small extent have compensated for shortages of natural raw materials. Glycerin, a

by-product of the soap industry, has been in such demand in the explosives industry, that it is recovered by practically all soap manufacturers. A process for the synthesis of glycerin from petroleum refinery gases has been perfected, but so far has not been put into operation.

Alcohols.—While very considerable quantities of alcohols, particularly the secondary alcohols, are made from refinery gases and some higher alcohols and butylene glycol are fermentation products, chief interest during the war period has been centered on ethyl alcohol because of its use as a raw material in the synthetic rubber industry. In 1944 about 60 per cent of the butadiene consumed by this industry was made from alcohol, the remainder coming from petroleum refinery gases. Construction of equipment for making butadiene from the latter source was somewhat delayed, but its completion in 1945 will make it possible for the petroleum industry to produce a larger share of this important raw material. The chief process for making butadiene from alcohol involves the catalytic oxidation of alcohol to acetaldehyde, which reacts with additional alcohol in the presence of another catalyst with the loss of water to yield the desired hydrocarbon, C_4H_6.

The larger part of industrial alcohol has been made from grain. Prior to the war blackstrap molasses was the major raw material in this industry, but the supply from the West Indies was cut off by the shortage in tankers. So great has been the need for industrial alcohol that the production of beverage alcohol from grain was discontinued for the duration of the war. Average prewar production of alcohol was of the order of 100 to 125 million gallons of 95 per cent material. Production in 1944 approximated 600 million gallons, and the figure for 1945 is estimated to be about the same amount. It is interesting to note that from 50 to 60 million gallons of ethyl alcohol are now being made each year from ethylene, which in turn is derived from petroleum refinery gases. While this is only a small fraction of the total alcohol supply, it represents double prewar production from this source. In order to maintain proper perspective it should be remembered that nearly half of the supply of ethyl alcohol is consumed in industries other than the synthetic rubber industry. An important war use that is of minor importance in peacetime is in the manufacture of military explosives of the propellant type. A great deal has been said about alcohol as a motor fuel. To all of this may be added the recent discovery that the injection of alcohol and water or steam into the gasoline-air mixture greatly improves the performance of internal-combustion engines. Considerable research needs to be done before this procedure can become standard, but there are indications that it may result not only in cleaner engines, but in less fuel consumption and the permissible lowering of 10 to 12 octane numbers. Polymerized acetaldehyde may replace alcohol in making solid fuel tablets. Since acetaldehyde is made from calcium carbide as well as from alcohol, this represents a possible competition in a small way for the fermentation industries.

Turpentine and Rosin.—The war period has seen some shifts in the naval stores industry. More turpentine and rosin are made from waste wood and less from living trees. The great increase of the sulfate process for making wood pulp has led to the use of pine chips and to a notable production of turpentine from this source. A new use of alpha pinene from turpentine is in the manufacture of an insecticide, the pinene being isomerized to camphane, which in turn is made into a complex thiocyanate. Rosin is finding new uses in waterproofing dirt roads, in preventing winter damage to concrete, in furnishing acids for synthetic paint oils, as binder for casting sand cores and molds, and as an ingredient in oil-resisting paper board. It has been found that spraying sulfuric acid on the cut surfaces of pine trees will delay the coagulation of rosin and permit longer flow of exudate.

Cellulose Products.—Considerable savings of wood has been effected by the use of high-pressure jets of water to remove bark from logs. The trend in production of wood pulp is distinctly toward the sulfate process. Originally used for the manufacture of brown wrapping paper, it is now accounting for a large tonnage of white papers. Sulfate pulp can be made sufficiently pure to serve as a raw material for cellulose nitrate for smokeless powder, formerly made only from cotton linters or sulfite pulp. In the ordinary sulfite process there is relatively little recovery of lignin or chemicals. A successful pilot plant operation indicates that substitution of magnesium bisulfite for calcium bisulfite in the cooking acid will permit evaporation of the spent digester liquids without scale formation in the evaporators, so that the lignins may be burned as a source of heat and the chemicals may be recovered and recycled. Pellets of cellulose fiber from which little or no lignin has been removed are employed in ordinary sandblasting equipment to remove carbon from internal-combustion engines. This material is very durable, permitting repeated use, and the danger of scratching the metal is eliminated. A recent use of sulfite-pulp by-products is the addition of calcium lignosulfonate to concrete mixes to prevent the clumping together of cement particles. Concrete in which this dispersing agent has been used is said to be less porous, stronger, and more durable than ordinary concrete.

In the field of chemical derivatives the production of rayon continues to increase, an important war use being in tire cord. In 1944 production of rayon in the United States reached a peak of 724 million pounds, 169 million pounds being staple. The viscose process leads with 369 million pounds, while acetate rayon reached a production of 172 million pounds. Methyl cellulose has been found to function satisfactorily as an artificial humus in soil, and has other agricultural uses such as a dressing for tree wounds, a protective coating for seeds, fruits, cut flowers, and roots for transplanting, and a culture medium for bacteria.

Textiles.—Improvements in this field during the war years include the development of water-repellent finishes such as quaternary ammonium compounds of pyridine, the halogenation of wool, the crimping of rayon staple to resemble wool, the production of vinyl ester fibers of higher melting point, the prevention of shrinkage and wrinkling of woolen fabrics, the impregnation of fabrics with colloidal silica to avoid shine and to reduce runs in hosiery, the coloring of fabrics by incorporation of pigments rather than by the adsorption of dyes, the development of nylon fibers with improved properties, and better continuous methods of hydrogen peroxide bleaching. Somewhat related to this field is the treatment of wool on sheepskin with nitric acid in dilute alcohol, which results in straightening of the individual hairs so that there is a close resemblance to such furs as seal and beaver. The color of the

wool after treatment is yellow, but it may be dyed almost any dark color.

The return of nylon to peacetime uses should result in making available more than 20 million pounds for hosiery. Tires have been absorbing around 10 million pounds per year and the remainder has gone into tow ropes, parachutes, and GI shoe laces.

Synthetic Rubber.—Within five years American chemists and chemical engineers have succeeded in building a new industry capable of producing in a year as much synthetic rubber as the whole world consumed of natural rubber in any year before 1941. Up until the beginning of the war period a few thousand tons per year of specialty rubbers such as thiokol, koroseal, and neoprene represented the entire synthetic rubber industry. This country was wholly dependent on imported natural rubber for its tire, tube, footwear, and other fabricating industries. By 1945 the capacity of synthetic rubber plants had reached one million long tons, and a production of 1.2 million long tons has been scheduled for 1946. In 1944 nearly 800,000 long tons of synthetic rubber were synthesized, of which about 90 per cent was of the Buna-S or GR-S type.

In this connection it is interesting to note that the production of neoprene, the first successful synthetic rubber developed in this country fifteen years ago, increased about ten fold over the 1941 figure. Approximately 110,000 long tons of natural rubber were consumed, drawn partly from the prewar stockpile and partly from very limited importations. The end of the war saw the supply of natural rubber on hand reduced to around 100,000 long tons.

This almost miraculous feat of industrial production was accomplished by selecting a single process and centering all efforts on that process. Butadiene, made from alcohol and from refinery gases, and styrene, made from coal-gas benzene and ethylene from alcohol or refinery gases, are combined in the proportions of 3 to 1 in the presence of soapy water containing minor amounts of chemicals to form a latex, which is later coagulated to a mass of crumbs. The most recent process is a continuous one, considerably increasing the rate of production. The larger part of the equipment and operations in this process is required in making butadiene and styrene.

The product, Buna-S or GR-S rubber, is not an exact replacement for natural rubber. In some respects the new material appears to be superior and in others it is not equal to the natural product. When it is remembered that the industry has had a hundred years experience in compounding and fabricating natural rubber as contrasted with not more than three years with the new product, comparisons between the two are somewhat premature. Certain phenolic resins have been employed to overcome the stiffness of mixtures containing synthetic rubber from which hard rubber is to be made. Alkyl phenol sulfides have proved to be somewhat better vulcanizing agents than sulfur for Buna-S and Buna-N rubbers, but have no advantage over sulfur with neoprene or natural rubber.

An important ingredient in the manufacture of rubber products is reclaimed rubber. This is not wholly a substitute for new rubber, but is essential because of its own peculiar properties in the making of certain types of rubber products. The technology of reclaiming scrap and waste rubber made from the natural variety is not wholly applicable to reclaiming synthetic rubber, but considerable progress has been made in adapting former methods and developing new ones for synthetic "reclaim."

Synthetic Buna-S latex is not yet equal to the latex obtained from Hevea trees, but considerable quantities are being used, the consumption being probably up to one third of the prewar figure for natural latex. An important use is in impregnating cotton and rayon tire cord. An improvement in preparing synthetic latex consists in making the dispersed particles larger so as to compare in size with those of the natural material.

Butyl rubber, made by copolymerizing butadiene and isobutylene, is a material in which there is relatively little unsaturation. This new rubber, which is strictly an American product, is specially suited to the manufacture of inner tubes for tires. These tubes hold air much better than those made from any other type of rubber, and also hold helium remarkably well. Substitution of helium for air in large airplane tires means a noteworthy saving in weight.

Silico-Organic Compounds.—Compounds in which both silicon and carbon are combined with hydrogen, oxygen, chlorine, and other elements continue to prove extremely useful. Tetraethyl orthosilicate hydrolyzes in water to produce a highly resistant amorphous silica which is very useful in the ceramic industry as a bonding agent for molds in which metal castings are poured, for refractory crucibles, for porous silica articles, and for solid fuels, and also as an ingredient of heat-resisting paints and of lacquers that are to adhere to glass.

A silica aerogel, made water-repellent with silico-organic compounds, functions as a heat-insulating material. It has the appearance of snow, pours freely, has a density of 3 pounds per cubic foot, and is twice as effective a heat insulator as cork. It may be used in blankets and sleeping bags, and in garments in which it is held between layers of uncut velvet with thermoplastic stitching. It may take the place of carbon black in rubber, and in camouflage paints it breaks up light rays and gives a dull sheen.

Silicone greases are not only highly effective valve lubricants but function as an insulating material around spark plugs. Silicone rubbers are commercially available for molding, extruding, coating, and laminating. They are elastic between -70°F. and 500°F. Used either alone or as coatings on asbestos and glass they resist heat and have high dielectric constants, and are not affected by oil or brines.

Other Plastics.—Wartime use of plastics of all types has resulted in a peak production of over 400,000 tons per year, which is nearly one half the 1944 production of synthetic rubber and considerably more than magnesium. Plastics do not appear in considerable quantities in any large manufactured article but are components of adhesives and protective coatings, and the material of which an infinite variety of smaller articles are made. Probably the largest single units in which they appear are the transparent noses and turrets of aircraft. Very few new types of plastics have appeared during the war years, but there have been many variations and improvements in those already developed.

The great contributions of plastics to the coating, wrapping, and packaging of war supplies have already been referred to. Plastics have made possible extremely smooth surfaces of airplanes which consequently have less wind resistance. External rivets are countersunk, cracks are filled with putty of a special type, the sur-

face coating is sanded, and an airfoil lacquer is sprayed on with the proper type of thinner to allow flow to a smooth film, which is dried and polished to a glass finish. Such coatings are flexible, even at very low temperatures, and highly resistant to gasoline and hydraulic and deicing liquids.

Cold-setting formaldehyde-resorcinol plastics are proving very useful in bonding wood, being mixed with a hardener before application. Large prefabricated sections that can not be placed in a press are held together by such cold-setting resins. Other plastics of a related type set at temperatures as low as 140° F., and are specially valuable in heavy laminated timbers, parts of small boats that are heavily stressed, and in grinding wheels. Metal surfaces may be bonded together when treated with primary coats of thermosetting resins.

Furan-base resins function as an ingredient of mortars for acidproof masonry and have an initial set of 20 to 30 minutes. In 2 to 3 days they reach their full cure and are highly resistant to alkalies, oils, solvents, and most acids except concentrated oxidizing acids.

Glass bottles containing dangerous chemicals are being coated with plastics so that the shape of the bottle is retained even if the glass is cracked or shattered, thus giving time for the transfer of contents.

Plastics continue to be useful as a coating for textiles. A very thin and invisible coating of vinyl butyral resin on fabrics does not alter their feel or appearance but permits the washing off of stains without wetting the fabric. Synthetic resins on cotton cloth serve as flame-proofing agents, the cloth charring when heated but giving no afterglow when the flame is removed. Cotton cloth may be coated with a synthetic plastic until it is only porous enough to permit small quantities of water to soak through. Such fabrics take the place of flax in water bags whose contents are cooled by evaporation. Many thousands of such bags have been made during the war.

Drugs, Insecticides, and Agricultural Chemicals.—While several new sulfa drugs and other pharmaceuticals were developed during the war period and the manufacture of standard materials was greatly increased, interest has been centered largely on the new antibiotics derived from the growth of molds. The production of penicillin in 1945 is estimated as being between 8 and 10 tons. Since the broth removed from the solid products of molds contains only about 50 parts per million of penicillin and several intricate steps are involved in the process including final drying at extremely low pressures and temperature, the magnitude of this industry can be readily appreciated. Streptomycin is another antibiotic that, it is hoped, will greatly supplement penicillin by preventing the growth of such disease germs as those of typhoid fever, dysentery, tularemia, and whooping cough, all of which are immune to penicillin. Clinical tests are now being carried on extensively to determine the effectiveness of streptomycin.

The chief antimalarial which was manufactured and furnished to troops in subtropical and tropical climates was atabrine. At the same time the War Department developed small portable types of quinine extraction plants that could be used on wet bark in the forests. Some of these employed ion-exchange resins while others depended on the use of such locally obtainable materials as vinegar as a source of acid and the leachings of wood ashes for alkali.

The insecticide, dichloro-diphenyl-trichlorethane, commonly known as DDT is now on sale for domestic use after having protected millions of soldiers and whole populations against typhus and other plagues in the war area. Production of this material rose in 1944 to 12,000 tons.

An absorbable type of cellulose, announced in 1941, reached full-scale use in military hospitals by the end of the war. The flow of blood is stopped by formation of a gelatinous clot. Gauzes of this material do not have to be removed from wounds. The material is made by the oxidation of cellulose by nitric acid, hydroxyl groups being converted to carboxyl groups in the process. As much as 85 per cent of the original strength of the fiber is preserved.

Synthetic margaric acid, $C_{17}H_{34}O_2$, is made from cetyl bromide and sodium cyanide with subsequent hydrolysis. The acid, or its glycerin ester, functions as a fat, but does not give toxic acetone bodies in cases of severe diabetes, as do fats which are esters of acids made up of an even number of carbon atoms.

The killing of rodents has been made easier by two chemicals, sodium fluoroacetate and alpha naphthyl thiourea. In the dilutions used, sodium fluoroacetate has little danger of poisoning human beings. It is not a cumulative poison and is not absorbed through the skin. It is, however, dangerous to pets and livestock and its use is likely to be confined to professional rodent killers and to being placed in prairie dog holes. The alpha naphthyl thiourea is also not particularly dangerous to humans. Dogs are reasonably well protected since the drug induces vomiting with this type of animal. The common Norway or gray rat is peculiarly susceptible to this chemical, which causes a dropsy of the lungs. The use of rats as laboratory test animals led to the discovery of their sensitiveness to this chemical.

Pyridinylmercuric stearate has been found to be an excellent fungicide and bactericide with water-repellent properties. It can be incorporated into oils, varnish and lacquer solvents, and waxes, and is most effective in fungus-resisting paints and in mildewproof textiles, in greases attacked by tropical organisms, and as an antiseptic in cutting oils.

Magnesium oxychloride cements containing copper, already useful for their germicidal and fungicidal properties, have now been found to repel roaches.

In the field of agriculture, naphthalene acetic acid will not only prevent premature dropping of apples, but is most effective in thinning blossoms. The chemical, 2,4-dichlorophenoxyacetic acid, is proving a most effective weed killer without injuring grass or growing grain. It is applied in dilute solution as a spray.

A fused mixture of rock phosphate, potassium carbonate, and silica, to which small amounts of other essential elements have been added, when finely ground, can be added to soil to furnish all the substances, besides water, air, and nitrogen compounds, that are needed for the growth of plants. The advantage of this material over other fertilizers lies in the complete control of solubility.

W. T. READ,
National Roster of Scientific and Specialized Personnel.

CHEMOTHERAPY. See CHEMISTRY; MEDICINE, PROGRESS IN; MELLON INSTITUTE; TROPICAL DISEASES.

CHEMURGY. Fabric made from chicken feathers was among the more interesting chemurgic achievements during 1945. While commercial production had not begun, the experimental work reached a stage that justified a large manufacturing company (United States Rubber) in announcing the product.

While "light as a feather" is metaphorically accurate, the annual supply of chicken feathers in the United States is at least 50,000 tons. Turkeys yield another 15,000 tons. The total is a quantity of raw material not to be ignored. A large proportion of this tonnage is economically available; the feathers are concentrated in central locations where the fowls are dressed for market. Heretofore they have mostly been wasted and, in fact, have presented a disposal problem. The fowls are plucked wet, and wet feathers decompose with alacrity.

Rapid decomposition was the first problem to be solved before feathers could be useful as an industrial material. It was found that .55 of a pound of salicylic acid, 1.1 pounds of benzoic acid in 30 gallons of lukewarm water prevented decomposition. Another solution, using the same amount of water with 15 pounds of common salt and a pint of commercial concentrated hydrochloric acid, has been reported effective. At any rate, means were found for safe preservation and transportation of wet feathers.

For fiber making the barbs are removed mechanically from the quills which, so far, are discarded. The barbs are then dissolved in solution of heavy chemicals from which about two-thirds of their weight is recovered in the form of a thick syrup. This syrupy material is extruded through spinnerets, as in making other synthetic fibers. A chemical bath stabilizes the fibers which are then made into yarn. Eighty per cent of each feather, and three-quarters of the feathers from a fowl are said to be usable.

According to the company announcement, the fabric is softer and lighter than wool which it resembles; it can be dyed; is odorless; and presents a brilliant luster. The fabrics made so far have mixed 60 to 70 per cent of the feather fiber with other standard textiles. Like wool, feathers are a protein structure. Plastic materials have been made experimentally. Surgical sutures may be another product of the feather protein, since such a thread because of its composition would be absorbed by the body, making removal of stitches unnecessary.

Ramie.—Although ramie has been grown and used for thousands of years, not until 1945 did genuine promise appear for commercial abundance of this remarkable natural fiber. The baffling problems of machi e decortication and degumming appear to have been solved after nearly a century of numerous efforts.

Ramie is a semi-tropical plant of the nettle family which grows three to eight feet high. Propagated by root cuttings, three or more crops annually may be harvested from the stalks, and four to seven years may elapse before new plantings have to be made. The stalk contains pith, surrounded by a layer of inner bark. Here the fiber is imbedded in gums and pectins which have been extremely difficult to remove. Oriental laborers, working by hand methods, have been able to produce no more than three or four pounds of clean fiber daily. The operation has until now remained at a stage comparable to that of cotton before the invention of the gin. The gums adhere and dry, and then become even more difficult to remove.

While details of the new machines have not been made public, it is presumed that the solution has been found in green decortication accompanied by heavy streams of water to wash out the gums and pectins.

Newport Industries are planting their second thousand acres in Florida, have constructed a $150,000 plant, and have announced commercial fiber production for the fall of 1946. Several other interests have made investments which indicate confidence in their ability to market fiber.

Ramie is a long fiber, stronger either wet or dry than most other natural or artificial fibers, with a dozen or more attractive qualities which assure a market for large quantities.

Waxy Corn.—Acreage of waxy corn, the maize from which starch chemically identical with cassava starches is produced, was further increased in 1945. Demand for adhesives and for foodstuffs resembling tapioca extended the milling industry's requirements for this specialized corn variety. A premium is paid because the corn must be kept separate from regular varieties.

Natural Rubber.—End of the war and prospect of tropical rubber, and availability of synthetic rubber, checked progress in development of guayule, the southwestern desert shrub, and of kok-saghyz, the Russian dandelion, as American sources of natural rubber. It was expected, however, that interest in both would continue active.

WHEELER MCMILLEN,
Editor in Chief, Farm Journal.

CHENNAULT, Claire Lee, United States Army Air Force officer: b. Texas, Sept. 6, 1890. On July 15, 1945, Major General Chennault relinquished his air command after eight years of helping China fight her war with Japan—first as Chiang Kai-shek's aviation adviser, later as chief of the American Volunteer Group or the "Flying Tigers," and finally as commander of the United States Fourteenth Air Force. On Oct. 31, 1945, he retired from the army, ending a 25-year career of active service. Press dispatches covering General Chennault's resignation from his China post pointed out that he had never felt his airmen got their proper share of supplies reaching China through India. Said *Newsweek* magazine (July 23, 1945), "from December of 1941 when a handful of Tigers had helped keep the Burma Road open, one of his greatest talents had been knowing how to fight patiently on a shoestring (Chennault always managed to keep his obsolete planes flying) . . . his patience wore out."

In the First World War, General Chennault served with the Signal Corps Reserve's aviation section, and in 1920, was commissioned first lieutenant in the army's air service. Between the two wars, his duties were varied and included a number of teaching assignments at army flight training schools throughout the United States. He holds the Distinguished Service Medal, the Distinguished Flying Cross, and the Army, Navy, and Air Force Medal (Chinese); he is also a commander of the Order of the British Empire.

CHERNYAKHOVSKY, Ivan Danilovich, Soviet Army officer: b. Ukraine, Russia, 1908?; d. of wounds received on the battlefield of East Prussia, Feb. 18, 1945. The youngest and one of the most brilliant Soviet generals, Chernyakhovsky led the Third White Russian Army, which was the first to invade Germany in 1944. He was responsible for the liberation of Minsk, Vilna and Kaunas, and the conquest of nearly all of East

Prussia. General Chernyakhovsky entered the army as a private and rose rapidly from a colonelcy in 1942 to the rank of major general in the winter of 1943, and was designated colonel general in March 1944. As a tank expert, he helped defend Voronezh in 1942, and was made a Hero of the Soviet Union for the crossing of the Dnieper in October 1943. It was his troops that liberated Kiev in November 1943.

On June 27, 1944, he received command of his own army. In the Russian drive that began in the summer of 1944, General Chernyakhovsky and Gen. Ivan Bagramian were assigned to clear the way for a westward offensive along the highway to Minsk and Warsaw, with Berlin as the ultimate objective. After the encirclement and fall of Vitebsk, the most strongly fortified Russian city held by the Germans, Marshal Stalin elevated Chernyakhovsky to the rank of a full general. Three days before his death, he was the subject of an order of the day by Stalin for his troops' gallantry in the battle of East Prussia. He was the recipient of more orders of the day from Stalin than any other general in Soviet history. Plans to erect a monument in his honor at Vilna were announced at the time of his death.

CHERRIES. The Department of Agriculture estimated the 1945 cherry crop of the United States at 133,360 tons as compared with the 1944 crop of 202,090 tons and the 1934–43 average crop of 153,141 tons. Washington, California and Oregon were the leading producing states in 1945 in the order mentioned. The 1945 crops were given as 34,500 tons; 31,900 tons and 22,900 tons respectively. In 1944 they produced respectively 29,100 tons; 27,000 tons and 20,700 tons. New York was the next largest producer with a crop of but 9,900 tons in 1945 against a 1944 crop of 25,000 tons, and a 1934–43 average crop of 20,535 tons. Michigan produced but 9,300 tons in 1945 against 54,600 tons in 1944 and a 1934-43 average production of 35,610 tons.

CHESS. See SPORTS IN 1945.

CHIANG KAI-SHEK, Chinese statesman and general: b. Chikow, District of Fenghwa, Chekiang Province, China, Oct. 31, 1887. Generalissimo Chiang Kai-shek continued to be throughout 1945 the acknowledged military and political leader in China, despite renewed tension between his Chungking government and the Chinese Communists. On March 1, 1945, he announced plans for the convention in November of a national assembly, representative of all political parties, to draw up a constitution. On May 19, his resolution to legalize all political groups was approved by the National Kuomintang Congress. He resigned his post as China's premier on May 31 in order to devote his full attention to prosecution of the war with Japan. In mid-August, Communist Gen. Chu Teh was reported to have refused to comply with General Chiang Kai-shek's order to the Eighteenth (Communist) Army Group to remain inactive instead of disarming Japanese troops. On August 15, Chiang issued his first invitation to Communist leader Gen. Mao Tzetung to meet with him in Chungking for discussion of Nationalist-Communist differences. It was not until August 26, after reported clashes between government and Communist troops in Shansi Province, that Chiang Kai-shek prevailed upon Gen. Mao Tzetung to consent to a Chungking conference. On September 3, in his victory message to the Chinese people, he asked that China be rebuilt as "a model democratic state in the Far East," and added that the government would "brook no delay in the inauguration of a constitutional policy." He further pledged to the Chinese higher standards of living, greater employment, farm land grants for war veterans, and freedom of speech and of person to all.

See also WORLD POLITICS; WORLD WAR, SECOND.

CHICAGO NATURAL HISTORY MUSEUM (formerly FIELD MUSEUM OF NATURAL HISTORY). The most important accomplishment of this museum in 1945 was the completion and opening to the public of a new Hall of Whales, in July. More than two years had been spent in preparation of this hall, in which are represented most of the distinct types of whales of all the world's seas and oceans—approximately half of all species and subspecies known to zoologists. The large whales are illustrated by meticulously accurate models one-tenth life-size; small species by life-size models. The hall is embellished by a series of mural paintings by Staff Artist Arthur G. Rueckert illustrating various phases of the life of whales, as well as a scene portraying the bagging of a giant sperm whale in the days of the sail-propelled whaling ships.

A diorama depicting a typical Inca village in an Andean valley as it appeared before the conquest of Peru by the Spaniards in 1532 is the principal addition to the exhibits in the Department of Anthropology.

Other additions were made in various divisions of the departments of anthropology and zoology, and also in the departments of botany and geology. A series of special exhibits at various periods of the year attracted wide public attention. Meeting interest aroused by the atomic bomb, a special exhibit was installed of uranium and the minerals from which it is derived, and other minerals from which radioactive elements are obtained. Other special exhibits included one co-ordinating museum material with exhibits supplied by the government of the Dutch East Indies; the famous "Animals in Miniature" by the noted taxidermist and sculptor, Louis Paul Jonas, of Lake Mahopac, N. Y.; and one commemorating the 160th anniversary of the birth of John James Audubon.

The wartime ban on expeditions was continued, but with the ending of the conflict, plans were begun for future research in foreign regions. Actual resumption of expeditionary work, however, may continue to be delayed for some time, as many of the members of the staff who would participate are still in the armed forces of the United States.

Col. Clifford C. Gregg, director of the museum, who had been on active service with the army since September 1940, was released from his military duties and returned to the museum post on May 14, replacing Orr Goodson, acting director, who resigned to accept a position elsewhere.

Plans for co-operation in fields of mutual interest were ratified by the boards of trustees of the museum and the University of Chicago; and a similar arrangement is in development with Northwestern University. By this means, students of the universities will derive greater benefits through co-ordination of the museum resources with their curricula; and the staffs of the institutions will co-operate in research.

Attendance at the museum up to the time of this writing (September) continued close to the average of recent years, although falling off slightly from 1944.

CLIFFORD C. GREGG,
Director, Chicago Natural History Museum.

CHICKEN FEATHER FABRICS. See CHEMURGY.

CHIFLEY, Joseph Benedict, Australian premier: b. Bathurst, New South Wales, Australia, Sept. 22, 1885. On July 12, 1945, Mr. Chifley was elected prime minister of Australia to succeed the late John Curtin. He became the sixteenth prime minister of Australia, replacing the head of the interim regime, Francis M. Forde. Mr. Chifley left school at an early age to enter the New South Wales State Railway service, and in time, became a locomotive engineer on the Blue Mountains run. During this period, he was an active member of the Australian Railways Union, and developed a keen interest in labor politics. Before his entry into federal politics, he studied economics, finance, and industrial law, and practiced as advocate in state and federal industrial arbitration courts.

Mr. Chifley, who represents the constituency of Macquarie, entered the Australian Parliament in 1928, in the same election as the late Mr. Curtin, and the next year received his first portfolio as defense minister in the Scullin labor government. He lost his seat in Parliament in 1931, but by reason of his talent for financial administration, was retained in government service. In 1935, he was appointed a member of the Royal Commission on Monetary Banking Systems, and in the course of its sittings, he crystallized those opinions that later found expression in the Curtin government's radical banking legislation, of which Mr. Chifley was the chief architect.

At the outbreak of the Second World War, he was appointed director of labor in the newly formed Ministry of Munitions, and was also named a member of the Capital Issues Advisory Board. He returned to federal politics with the labor swing in the general elections of 1940. His financial experience made him an obvious choice for the post of treasurer when Curtin's first labor government was formed in October 1941. With the creation in 1942 of the Ministry of Postwar Reconstruction, Mr. Chifley was appointed its first minister. He held the portfolio, as well as that of treasurer, until early February 1945, when in a Cabinet reshuffle, postwar reconstruction was entrusted to John Dedman.

He was acting prime minister for a period during Mr. Curtin's illness and the absence abroad of Deputy Prime Minister Francis Forde, who headed Australia's delegation to the San Francisco World Security Conference. Mr. Chifley has earned a reputation for firm adherence to the policy of his party, and praise from all quarters in Australia—from leading bankers for his handling of Australia's finances during four difficult war years; from treasury officials who have voted him the country's greatest treasurer; and from the Australian public, despite the fact that in August 1942, he brought down the toughest budget in Australian history.

CHILD LABOR COMMITTEE, National. Organized in 1904 and incorporated by act of Congress in 1907, the purpose of the Child Labor Committee is to aid in protecting children and youth against harmful employment and in guiding them into suitable employment under the most favorable conditions.

Recent Data on Child Labor.—The end of the war and industry's reconversion to peacetime conditions found agencies concerned with problems of child labor prepared with broad policies and constructive programs for the education, training, and protection of young workers. In April 1944 about one third (2,900,000) of the total number of boys and girls 14 to 18 years of age (9,200,000) were in the labor force. Of these approximately 3 million young workers, 2 million were boys, 1 million girls. The 14 and 15 year olds make up 850,000 of these 3 million, boys outnumbering girls three to one in this age group. The number of 14 and 15 year old workers increased fourfold from April 1940 to April 1944 (209,347 to 850,000), while the 16 and 17 year workers increased three times (662,967 to 1,950,000). The number of children under 14 at work does not appear in these data from the Children's Bureau of the U.S. Department of Labor, but they were a noticeable group in many communities. The number of persons between the ages of 14 and 18 at work during the summer months of 1943 and 1944 was estimated to be 5 million.

In New York City, the Attendance Bureau of the New York City Schools, reported that the issuance of full-time employment certificates rose from 35,462 to 70,802 between 1941 and 1945 (the peak was 81,336 in 1944) and these went, for the most part, to non-high school graduates. The Bureau of Labor Statistics in Washington reports that the labor force in April 1944 had seen an increase since 1940 of 6,700,000 workers in excess of normal. The age group, 14 to 18 years, accounted for 1,730,000 of this excess, or roughly one fourth (1,090,000 boys and 640,000 girls). Four main industry groups claimed nine tenths of the 14- to 18-year-old labor force: agriculture, wholesale and retail trade, manufacturing and domestic and personal service. Agriculture is the largest classification for the 14- and 15-year-old group, manufacturing and trade for the 16- and 17-year-old group.

School Attendance of Young Workers.—High school enrollment in the United States, which had seen a steady increase up to 1940, fell about 14 per cent in the war period. According to U.S. Office of Education reports, this was a loss in enrollment of about 1 million students, from a total of 7,244,312 in 1940–41 to a total of 6,216,119 in 1943–44. Of the 3 million children, 14 to 18 years old, in the labor force in April 1944, about one half had left school to work full time and one half (1,400,000) worked part time while attending school. Boys constituted 1 million of these 1,400,000 part-time workers. In all age groups for both full-time and part-time categories, a greater proportion of farm boys than nonfarm boys were at work.

National-Go-to-School Drive.—National "Go-to-School" drives were organized in the summmer of 1944 and again in the summer of 1945. Some measure of the success of the 1944 campaign may be seen in the fact that the continuing decline in wartime high school enrollment which had gone on since 1940 was so far curtailed that the decline in the fall of 1944 was, according to the Children's Bureau, "almost negligible."

Violations of Child Labor Laws.—From all parts of the country evidence continued to accumulate of widely prevalent violations of state and federal child labor laws. The North Carolina Labor Department showed 22 times as many child labor law violations in the first six months of 1944 (7,576) as in the first half of 1940 (340). New

York State showed 11,809 violations from May through October 1944, as compared with 2,452 violations in the whole year 1940. Other states report similar striking increases. Largely as a result of vigorous efforts by the New York State Department of Labor to enforce the child labor law, the number of youth, illegally employed in the state, dropped from 4,871 in the two months May-June 1944 to 1,770 for the period May-June 1945.

The Children's Bureau, administering the Federal Fair Labor Standards Act, found in the three months of July, August, and September 1944, an increase of 100 per cent over these three months of 1943 in the number of young workers illegally employed (2,327 minors in 824 establishments as against, in 1943, 1,064 minors in 406 establishments). In general, the Children's Bureau reports, "more than seven times as many children were found to be illegally employed under the child labor provisions of the Federal Fair Labor Standards Act in 1945 as in the year 1941. These violations occurred in more than six times as many establishments."

Health and Accident Hazards.—Illegal child labor has resulted in a rise in the number of industrial accidents as reported in many sections of the country. In New York City, 548 double indemnity awards were made to minors injured while illegally employed in 1944, as compared with 289 such awards in 1943. Illinois reported a 100 per cent rise in the rate of industrial accidents to young workers in 1943 as compared with 1942, Michigan a rise of 211 per cent. In one state (North Carolina), the accident rate rose 1,100 per cent between 1940 and 1943; and over 1,300 per cent in another state (Pennsylvania).

Delinquency.—No one factor alone has caused the rise in juvenile delinquency noted during the war years. Excessively high earnings or the employment of young people in jobs "morally hazardous" may be seen as possible factors in this rise. Young teen-age girls working as waitresses or as curb hops in questionable eating places, or as usherettes, or young boys employed in poolrooms and bowling alleys are sometimes exposed to conditions conducive to delinquent behavior.

Boys and Girls Employed in Agriculture.—The Children's Bureau report on young agricultural workers in 1944 shows but slight improvement over previous years in the working conditions of children on farms. Nonfarm boys and girls employed on farms worked on a day-haul basis, living at home and working by day. For the most part these day-haul programs remain unsupervised. Some children under 14 (the minimum age recommended) were employed, some as young as 9 years of age. Earnings were generally low, and hours of work were unregulated and long. Housing conditions in farm work camps were reported to be better in 1944 than in the previous two years.

Child workers in migratory families continue to live and work at substandard levels. These children still need more sanitary living conditions, and legislation to protect them from exploitation and loss of educational opportunity. The most direct way to accomplish this, since migratory families work in several states during the year, would be to amend the child labor provisions of the Fair Labor Standards Act making it apply to commercialized agriculture throughout the year, instead of only while schools are in session.

New Jersey took action in 1945 to improve the conditions under which migrants work by establishing a division of migrant labor in its department of labor. The efforts of various agencies dealing with migrant workers are co-ordinated under the act. An appropriation of $100,000 is provided to administer the program to provide decent living quarters, health and welfare services, educational opportunities, and fair labor standards for migrant workers.

State Legislation.—Bills to improve child labor and compulsory education standards were introduced in many of the 42 state legislatures which met in 1945, but only a few became law. The National Child Labor Committee prepared a pamphlet for use in state legislative campaigns seeking to raise the minimum age for all employment to 16 during school hours and for factory employment at any time. Thirteen states already have such laws. Several such bills were introduced in the 1945 legislatures, but only in Illinois was the legislation passed, to become effective six months after the war. Georgia and North Carolina raised the required school attendance age from 14 to 16 (in North Carolina the age will be 15 for 1945–46 and 16 thereafter). In New York, a bill was passed to become effective Jan. 1, 1946, limiting part-time work hours after school as follows: children under 16 may not work more than 3 hours on any school day, 8 hours on a nonschool day, 23 hours a week when school is in session; 16-year-olds may not work more than 4 hours on a school day, 8 on a nonschool day, and 28 a week when school is in session. Only nine states have similar laws limiting the hours of part-time work.

Postwar Considerations.—The Bureau of Labor Statistics estimates that by 1947 there will be a surplus of 5,000,000 to 6,000,000 workers on a basis of civilian jobs as of 1941. If young people who have not finished high school remain in the labor market and if others continue to leave school in the future with only a year or two of high school education, they will add to the amount of unemployment by competing with adults for work, and they will not have the preparation either as workers or as citizens that will be needed in the coming decades.

The National Commission on Children in Wartime also made recommendations during the past year for working youth in the reconversion and readjustment period, particularly for older youth who are unlikely to return to school. These included: job placement services to aid them in their search for employment; programs that would give to young people the opportunity to combine work and school in such a way as to serve their long-run interest; employment of youth on public service projects, such as soil and forest conservation; skilled employment counseling services, to help young people make their choice of jobs, training courses and educational opportunities.

Labor unions, both the American Federation of Labor and the Congress of Industrial Organizations, have set forth resolutions seeking to readjust young workers in the postwar period.

Services and Publications.—The newly organized Child Welfare Information Service with offices at 930 F Street, NW., in Washington serves as a clearing house on federal legislation and activities in the field of child and youth welfare. Organizations working in these fields may subscribe to the service. Bernard Locker is executive secretary. Mrs. Eugene Meyer is president, and George J. Hecht is vice president and treasurer.

The National Child Labor Committee (419 Fourth Avenue, New York 16, N.Y.) offers information on child labor conditions, including changes needed in the provisions and administration of child labor and compulsory attendance laws. It co-operates in drafting and procuring the passage of legislation, publishes educational material, and carries on activities to promote better educational and employment opportunities for youth.

In 1944–45, the National Child Labor Committee issued the following publications:

The American Child (published monthly except in summer); *Annual Report*, for the year ending Sept. 30, 1945, by Gertrude Folks Zimand; *State Child Labor and Compulsory Education Legislation—1945*, by Louise D. Stetter; *The Long Road: Fortieth Anniversary Report of the National Child Labor Committee*, by Florence Taylor (October 1944); *The Changing Picture of Child Labor*, by Gertrude Folks Zimand (reprinted from November 1944 issue of *The Annals*); *The Case for Sixteen Year Employment Laws*, by Florence Taylor.

RUTH MALLAY,
National Child Labor Committee.

CHILDREN'S BUREAU, Federal. As the agency of the federal government devoted to the interests of children, the Children's Bureau of the Department of Labor carries research and policy-making functions and administers the child-labor provisions of the Fair Labor Standards Act of 1938 and the maternal and child-welfare programs of the Social Security Act. It also participates in the State Department's program for inter-American co-operation and in international movements related to child welfare.

Research and Policy-making.—*Child Health.*—The number of live births registered in 1944 was 2,794,800, according to the Bureau of the Census, a drop of 140,060 from 1943 when births reached a wartime peak. The provisional birth rate for 1944 was 20.2 per 1,000 population, compared with 21.5 in 1943. The infant mortality rate was reduced slightly in 1944—from 40.4 deaths of infants under 1 year of age per 1,000 live births to 39.8. A special campaign for more complete birth registration was conducted jointly by the Children's Bureau and the Bureau of the Census in connection with May Day-Child Health Day 1945.

The bureau revised two of its basic bulletins for parents (*Infant Care* and *Your Child From One to Six*) and issued pamphlets on cultivating good eating habits, traveling with a baby, the importance of birth registration, and books for children.

Information on the administration and content of school health programs was gathered at the request of state and territorial health officers, and the Children's Bureau, the United States Office of Education, and the United States Public Health Service agreed on a policy statement regarding improvement of school health services. The facilities of 20 hospitals were studied with a view to providing postgraduate training of doctors and nurses in the care of premature infants. Far-reaching recommendations on dental care for children were made at a conference of experts held in February 1945, and the following summer an adviser on dental services was added to the bureau staff to conduct research and give consultation service to state health agencies.

A mental health unit was established in the bureau in September 1944 under the joint direction of the chief, the associate chief, and the division directors. This unit explored mental-health services available to children through state health and welfare agencies and offered consultation services to states planning to initiate or strengthen services in child psychiatry, clinical psychology, and psychiatric social work.

Social Service.—Among pressing problems resulting from war conditions were those of unmarried mothers and their children, including the placement of babies for profit, placement across state or national boundary lines, births out of wedlock occurring to wives of men serving overseas, shortages of foster homes, and inadequate maternity-home facilities for Negro mothers. Juvenile delinquency continued to be a problem of widespread concern, although preliminary reports from 225 courts indicated a slight decrease (5 per cent) in the number of delinquency cases disposed of in 1944 compared with 1943. Consultation service was given to state and community groups studying the causes and prevention of juvenile delinquency and the detention of children in jails. Postwar planning for leisure-time services envisaged expansion of recreation facilities to meet the needs of all children and youth, with special attention to children in migrant families, minority groups, handicapped children, and older adolescents. Work on guardianship problems begun the previous year was continued and expanded.

Employment Problems.—The number of minors under 18 at work during the school year 1944–45 was estimated at about 3,000,000. During the summer of 1945 the number rose sharply to approximately 4,500,000. Vigorous back-to-school drives conducted in the summer and fall of 1944 and again in 1945 by the Children's Bureau, the United States Office of Education, and the Office of War Information with the co-operation of many national and state organizations, were credited with checking the drop in high-school enrolments which amounted to over a million in the first 3 years of war.

A marked upward trend in injuries to workers under 18 during the war period was indicated in a number of states. To aid employers in selecting nonhazardous jobs for young workers the bureau issued advisory standards for the pulp and paper, textile, railroad, foundry, and brick and tile industries, bringing to 14 the total number of such standards issued during the war.

Four proposals for dealing with child-labor and youth-employment problems after the war were developed in consultation with other federal agencies: (1) full enforcement of existing laws; (2) revision of state laws where necessary to raise the minimum age for employment to 16 years for manufacturing establishments at any time and for any occupation during school hours; (3) educational allowances to take the place of unemployment-compensation benefits for young workers if they returned to school; and (4) student aid and other measures to help young persons complete their schooling. An Interagency Committee on Youth Employment and Education was set up with the chief of the Children's Bureau as chairman and took under consideration at its first meeting, in April 1945, a program of work and planning on questions of student aid, counseling, and work opportunities. A study of combined school and work programs was begun by the bureau and the U. S. Office of Education.

Administration of Federal Child-Labor Provisions.—The administration of the child-labor provisions of the Fair Labor Standards Act through a program for making certificates of age available for minors in industries subject to the act and through a program of inspection for compliance was continued. Employment or age certificates issued under state law in 44 states, the District

of Columbia, Hawaii, and Puerto Rico, were accepted as proof of age under the act, and in 4 states, federal certificates of age were issued by the bureau. According to reports received by the bureau, more than 1,500,000 minors 14 through 17 years of age, about one-fourth of whom were 14 or 15 years of age, were issued certificates for full-time or part-time work during the year 1944.

Inspections of establishments producing goods for shipment in interstate commerce disclosed 3,481 establishments (about 8 per cent of those inspected) employing minors under 18 in violation of the federal law, an increase of 19 per cent over 1944 and more than 100 per cent over 1943. In these establishments 13,289 minors were illegally employed, an increase of 58 per cent over 1944 and nearly 200 per cent over 1943. In order to spread understanding of the child-labor provisions of the act, the bureau consultants conducted child-labor clinics in some 40 sections of the country at which employers, representatives of state departments of labor and education, and labor unions had opportunity for forum discussion.

The Supreme Court on Jan. 8, 1945, reversing a decision of the lower courts, ruled that the child-labor provisions of the Fair Labor Standards Act did not apply to the employment of messengers by the Western Union Telegraph Company. This meant that telegraph messengers no longer were subject to the 16-year provision of the act, although they were still subject to state child-labor laws, and resulted in a marked rise in the number of employment certificates issued to 14- and 15 year-old children for such work.

Administration of Grants to States.—The programs administered by the Children's Bureau under title V, parts 1, 2, and 3 of the Social Security Act and the emergency maternity and infant-care program continued in operation in all states and territories, except that Utah did not take part in the child-welfare program. Payments to states from federal funds during the year ended June 30, 1945, were as follows:

Program	*State agency*	*Payments*
Maternal and child-health services	Health dept.	$5,553,000
Emergency maternity and infant care	Health dept.	45,000,000
Services for crippled children	Crippled children's agency	3,874,000
Child-welfare services	Welfare dept.	1,366,000

Except in the case of emergency maternity and infant care, these sums, supplemented or matched in large part state and local funds, and by no means represented the total amounts spent for the programs.

Emergency Maternity and Infant Care.—A total of 482,000 wives and infants of servicemen received medical, nursing, and hospital care during the year ended June 30, 1945, bringing to 884,000 the number of cases authorized for care since the first congressional appropriation for emergency maternity and infant care in March 1943. The funds were used by state health departments to pay doctors, nurses, and hospitals participating in the program for services rendered to maternity patients and infants for whom care was authorized. Those eligible were the wives and infants under one year of age of men in the four lowest pay grades of the armed forces and of aviation cadets.

Maternal and Child-Health Services.—The basic services provided under the supervision of state and local health departments included prenatal clinics, child-health conferences, home nursing visits, school medical examinations, and nutrition, dental, and mental-health programs. For the most part the states were able to maintain existing services in spite of continued wartime shortages in professional personnel. Some states even began new programs for the care of premature infants or the improvement of nutrition.

A joint committee representing the Children's Bureau Advisory Committee on Maternal and Child-Health Services, the American Academy of Pediatrics, and the American Pediatrics Society drew up a report proposing "to make available to all mothers and children in the United States of America all essential preventive, diagnostic, and curative medical services of high quality which, used in co-operation with the other services for children, will make this country an ideal place for children to grow into responsible citizens." The American Academy of Pediatrics adopted this report in November 1944 and requested the United States Public Health Service and the Children's Bureau to join it in a survey in every state to determine the extension of personnel and facilities needed.

Services for Crippled Children.—All phases of the state programs for crippled children were reviewed at a conference of state directors of crippled children's agencies held at the Children's Bureau in November 1944. An outline was prepared to help state agencies in planning to meet poliomyelitis epidemics. Two states, Missouri and Montana, instituted services for children with rheumatic fever and heart disease, bringing the number of states conducting such programs to 18. California enacted legislation providing for services for children with hearing defects. In Texas the program for crippled children was transferred from the education department to the health department, making a total of 30 states in which this program is administered by the health agency. Medical-social services were strengthened in a number of states.

The number of crippled children admitted to diagnostic and treatment clinics and to public-health-nursing service increased in 1944; the number admitted to hospitals decreased slightly. The total number of children on state crippled children's registers rose from 364,000 in December 1943 to nearly 382,000 in December 1944.

Child-Welfare Services.—The range of services provided under the child-welfare program, in connection with which the bureau child-welfare consultants were called on, included development of broad programs of social services to children in local communities, day-care services for children of working mothers, licensing and supervision of foster homes and child-caring agencies, community programs for dealing with juvenile delinquency, services for unmarried mothers, supervision of adoptions, the use of recreation and group-work techniques, and the drafting of state legislation.

The wartime difficulty of obtaining qualified child-welfare workers continued. Reports from state welfare agencies as of July 31, 1944, indicated some 3,600 workers giving service to children, with more than one in six paid in whole or in part from federal child-welfare funds. There were 1,734 workers providing direct services to children on a full-time basis, but in many instances the program was limited to foster-care services and did not include services to children in their own homes.

Building the Future.—The keynote for developments after the war in the children's field was supplied by the National Commission on Children in Wartime, first appointed by the chief of the Children's Bureau in 1942, through a report issued in April 1945 after extended consultation with the various advisory committees of the bureau. This report, *Building the Future for Children and Youth,* contained proposals for action in the fields of child health, child welfare, adoption, family support, education, and child labor. Recommendations were made for continuous community planning for children and youth. Designated for immediate study were mental-hygiene services, problems of guardianship, leisure-time services, and a postwar program for youth.

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CHILDREN'S LITERATURE. Effects of the war were still apparent in both format and subject matter of children's books of 1945. However, there was an obvious thinking in terms of future peace and laying the foundations of international friendships and brotherhood of race and creed. The number of juvenile titles published during 1945 was 691; during 1944, 645. The scarcity of toys was reflected in augmented sales of children's publications and continuing popularity of the gadget books was noted. An enchanting animal tale, *Rabbit Hill,* by Robert Lawson, published in 1944, was awarded the Newbery Medal for outstanding distinction while memories of Kenneth Grahame, author of a beloved animal classic, were refreshed by *First Whisper of "The Wind in the Willows,"* containing letters to his son, edited and charmingly introduced by Mrs. Grahame.

That picture books and stories were diverse in subject is shown by a few of the titles. *Ilenka* in Lee Kingman's story of that name was a little Russian girl, worried about her future. Lois Lenski's lilting *Spring Is Here* was as gay as the season. Irena Lorentowicz's illustrations distinguished the old Polish folk tale, *Nine Crybaby Dolls,* retold by Josephine Bernhard, and Lee Maril's *Mr. Bunny Paints the Eggs.* Among the books in which animals were the attraction were Morgan Dennis' *Burlap* about a dog, Marguerite Henry's *The Little Fellow,* important because of Diana Thorne's pictures of the foal, Carl Glick's amusing *Mickey, the Horse that Volunteered* of Spanish American War setting, and *The Grocery Mouse* by Eleanor Clymer. Earl and Linette Burton's *The Exciting Adventures of Waldo* featured a little, wooden duck. Emma Brock wrote and illustrated in humorous manner *The Umbrella Man,* and Louis Slobodkin produced a new account of an old friend in *Clear the Track for Michael's Magic Train.*

In the realm of folklore and fantasy Alfred Stuart collected tales from the Channel Islands under the title, *The Wizard and His Magic Powder;* and Ruth and Latrobe Carroll's *School in the Sky* was a nonsensical story of a group of children and their teacher who went on an airplane trip.

Youthful heroism in the face of Nazi aggression was the subject of a number of books, among which *Orange on Top* by Henrietta Van der Haas dealt with a Dutch family, and Ruth Kennell's *That Boy Nikolka* contained four narratives of Russia.

Not so dramatic but none the less real was the significance given by war conditions in our own country to Siddie Joe Johnson's *Cathy,* deprived of her parents' companionship by demand of the times; Elizabeth Janet Gray's story o *Sandy,* determined to make her contribution whil the boys of her crowd were in the service and *A Sea Between,* in which Lavinia Davi told poignantly of a girl whose fiancé was over seas.

Outstanding among the good geographical ti tles were Ruth Brindze's pictorial and simple *Th Gulf Stream* and *Sky Highways,* in which Trevo Lloyd offered an airplane study of 21 countries In *Brazil, Giant to the South* Alice Hager wrot of the country and the people, and Evelyn Stef ansson told of the Arctic regions in *Within th Circle.*

Two books dealing with the history and cul ture of other countries were *The Land of th Chinese People* (Portraits of the Nations Series by Cornelia Spencer (pseudonym) and *Ne Found World,* Katherine Shippen's distinguishe picture of South America.

Fictional accounts of far away places witl excellent background material were typified b *Two Lands for Ming,* in which Stanley Hon Chin and Virginie Fowler presented a little Chi nese-American boy with a love for both his coun tries, and Florence Hayes' *The Eskimo Hunter* Jean Bothwell's *Little Boat Boy* had Kashmir fo a setting. Different in approach was Alan Crane' *Nick and Nan in Yucatan* with children from th United States visiting another country.

Several important books recognized the nee for greater understanding at home. Amon them *Melindy's Medal* by Georgene Faulkner an John Becker was a sympathetic, unself-consciou portrayal of a little Negro girl. In *The Ver Good Neighbors* Irmengarde Eberle told of family of friendly Mexicans, transplanted t Texas. Lorraine and Jerrold Beim's *Two Is Team* gave youngest readers an attractively illus trated lesson in racial co-operation. For older boy and girls Florence Crannell Means' *The Move Outers* about the Japanese-Americans, uproote after Pearl Harbor, had timely significance, an won for its author the 1945 Award of the Chil Study Association of America. And in *Up at Cit High* a boy made a stand for the right in a larg high school, Joseph Gollomb's gripping story o courage.

Biographies were largely heroic in tone. Ou of the Second World War came, among others Helen Nicolay's *Born to Command* about Genera Eisenhower; Ellsworth Newcomb's *Brave Nurse* composed of tales of various heroines; and Joh McNamara's *Extra! U.S. War Correspondents i Action,* including also journalists from other pe riods of history. Jean Burton's subject was *Gari baldi, Knight of Liberty,* and Hildegarde Haw thorne wrote of Patrick Henry in *Give Me Lib erty.* Rose Brown's *American Emperor* was a dis tinguished account of the Brazilian leader, Don Pedro II. *We Have Tomorrow* by Arna Bontemp was made up of stories of young Negroes, find ing a place for themselves in various professions Of appeal to older girls was Beryl Williams *Fashion Is our Business,* sketches of famous de signers.

In spite of the pressure of the times ther was an abundance of engrossing tales with histor ical background, of which the following title were representative. Elizabethan England wa the scene of Magdalen King-Hall's adventurou tale of a runaway, *Sturdy Rogue,* while Con stance Savery wrote of a boy's loyalty to Charle I in *Emeralds for the King.* Quaint customs o New Amsterdam were woven into Gladys Mal

vern's romance of the little bound girl in *Jonica's Island.* The daring exploits of Roger's Rangers gave color to *I Become a Ranger* by Leon Dean. Katharine Gibson based *Arrow Fly Home* on the actual experiences of two children captives of the Shawnee Indians. For *Patriot in the Saddle* J. C. Nolan chose a period, darkened by the approaching War of 1812. *Henry's Lincoln* was Louis Neyhart's easily read account of a little boy's trip to the Lincoln Douglas debate. In *Stocky, Boy of West Texas* Elizabeth Baker wrote of adventures on the plains in the late nineteenth century.

Books of spiritual import were represented for little children by Eleanor Farjeon's *A Prayer for Little Things,* illustrated by Elizabeth Orton Jones, whose pictures in *Prayer for a Child* were awarded the 1945 Caldecott Medal. Olive Price's *A Donkey for the King* told of the little animal on which Jesus rode into Jerusalem. Background material was good in Sophia Fahs' *Jesus: the Carpenter's Son* while *Nathan, Boy of Capernaum* by Amy Lillie centered about a young contemporary of the Christ and his fascination with the new teaching.

The wonders of natural science were brought before the botanically minded in a number of beautifully illustrated volumes, of which Margaret McKenny and Edith Johnston's *A Book of Wayside Fruits* was a colorful example. Martha Bruère in *Your Forests* made the story of that resource most thrilling. Wilfred Bronson's *Turtles* contained a fund of humorous and authentic information for youngest readers, and Jerome Meyer's *Picture Book of Astronomy* was a fascinating study, easily grasped by the middle age group.

In the field of applied science David Cooke edited the useful *The Aircraft Annual,* and Herbert Zim's *Rockets and Jets* furnished readable data on advances up to now and future possibilities in this area. *The Story of War Weapons* through the ages was told by Marshall McClintock.

Barbara Geismer and Antoinette Suter compiled a collection of childhood poetry for varied occasions under the title, *Very Young Verses.* Primitive, childlike paintings by Russian children composed *Little People in a Big Country* with comments by Norma Cohn. Funny tales from various sources were selected by Margaret Scoggin for *Chucklebait.*

A number of stories dealt with the problems and interests of older girls. Noteworthy in this group was Marguerite Dickson's *Bramble Bush,* which made interesting reading about the friendship of two girls with serious personal difficulties. In the nonfiction Margaret Bro's *Let's Talk About You* was practical and to the point.

Some of the titles about boys who did things were Marjorie Allee's *Smoke Jumper* (forest fire fighting), Robert Davis' *Gid Granger,* a Vermont farm lad, and Henry Lent's *Ahoy, Shipmate!* following one youth into the merchant marine.

Devotees of mystery, who have become very vocal in their desires, were given a generous supply of their favorites of both middle age and older appeal. Some of the books were Myna Lockwood's *Lo and Behold!* with Cape Cod setting, Margaret Leighton's *The Singing Cave* in the Southwest, Mary Urmston's *Mystery of the Old Barn,* Leda Wadsworth's *The Bronze Arrow Mystery* about foul play in a bus company and Bert Sackett's *Hurricane Treasure.*

Many adult titles had an enthusiastic reading public among young people, who showed a serious interest in progress of the war and prospects of a sound peace.

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CHILE. A republic of South America lying between the Andes and the Pacific, with an area (1940) of 286,322 square miles, not including territories in the Antarctic zone (see ANTARCTICA). The coastline is about 2,485 miles, and the average width of the country approximately 110 miles. Under Spanish domination for many centuries, Chile was proclaimed a republic in 1810, and succeeded in freeing itself from Spain in 1818. The constitution adopted in 1925 provides for a president, chosen for a term of six years by popular vote and eligible for immediate re-election. President Juan Antonio Rios, elected Feb. 2, 1942, began his six-year term on April 1. Legislative power is vested in a Congress of two houses—the Senate and the Chamber of Deputies. The Senate consists of 45 members elected for eight years, the Chamber of Deputies of 143 members elected for four years. There is suffrage in presidential and congressional elections for all male citizens over 21 years of age who can read and write; women, and foreigners of five years' residence having the vote in municipal elections. The state is divided into 25 provinces, presided over by *intendentes;* the provinces are divided into departments headed by *gobernadores,* and the departments are divided into municipal districts, each with a council. The estimated population (1943) is 5,191,027, the majority being of European origin. Native peoples include the Araucanians, inhabiting the Andean slopes and valleys; the Fuegians, who are mostly nomadic and live in the extreme south; and the Changos, who live in the north and are mainly manual laborers. The principal cities are: Santiago, the capital (pop. 1942, without suburbs, 696,000); and (according to the 1940 census), Valparaiso (215,614); Concepción (92,364); Temuco (84,696); Viña del Mar (70,013); Chillán (61,535); Talca (56,735); Antofagasto (51,107); and Valdivia (49,481).

Religion and Education.—Roman Catholicism was the state religion until 1925. All denominations are permitted and protected. The Roman Catholic Church has three archbishops (at La Serena, Santiago, and Concepción), 15 bishops, and two vicars apostolic throughout the republic. In 1931 there were 1,239 churches and chapels.

Education is free and compulsory for all children between the ages of 7 and 15. In 1939 there were 4,757 public and private primary schools with 611,494 pupils, 10 public and private normal schools with 1,764 pupils, 253 public and private secondary schools with 43,424 pupils, and 25 commercial schools with 6,441 pupils. In addition there were 151 schools giving special instruction to 32,176 pupils. Professional and higher education is provided by the State University of Chile, the Catholic University at Santiago; the National Institute of Santiago; the University of Concepción, the school of technology at Valparaiso (Universidad Industrial de Valparaiso) and in the lyceums and colleges established in the capitals of the provinces. University students in 1939 numbered 6,448. The federal appropriation for education in 1940 was 315,594,000 pesos.

Army and Navy.—Military service is compulsory for all able-bodied citizens from 20 to 45. Active service is usually for nine months. The country is divided into four military districts, each

of which furnishes a complete division when mobilized. The strength of the standing army in 1943 was about 212,000. In that year the total strength of the army was increased to 726,800, partly through the addition of motorized divisions. The air force was also increased to four brigades, one for each military district. The active strength of the navy is 8,000 men. In addition to training and auxiliary ships it includes one battleship, two cruisers, eight large destroyers, nine submarines, two coast defense ships, and two oil tankers. The construction of two additional cruisers of 3,000 tons was approved in 1939.

Communications.—Prior to 1944 total railway mileage was 5,200, of which 1,369 miles were privately owned, principally by foreign capital, and 3,378.5 miles were federal. During 1944 the State Railways took over operation of two private lines and a short feeder line. In 1945 the government was empowered to purchase the street railway systems in Santiago, Valparaíso, and San Bernardino (all of which had been government-operated for four years), and to set up a collective transport company to operate the lines. The Chilean part of the new line from Antofagasta to Salta, Argentina, was expected to be completed by the end of 1945, and by May was reported in operation to within 35 miles of the Argentine border. The railway is paralleled by an international highway. Postwar plans published in March 1945, called for the spending of about $56,000,000, largely for construction, power stations, new locomotives, and equipment, in connection with electrification, especially in the south. There were 24,855 miles of highways reported for 1939, of which nearly 20,000 were fit for motor traffic. Navigable river mileage was reported as 851, and navigable lake mileage as 497. Aviation was said to be well developed internally. In February 1945, regular air service was established between Santiago, the capital, and Puerto Montt, 574 miles south. Scheduled international service is also maintained with Argentina and the United States. There were in 1940, 1,107 post offices, 488 telegraph offices, and 284 telephone exchanges. Wireless stations, including that on the Juan Fernández Islands, 400 miles southwest of Valparaíso, are operated by the navy. Before 1944 there were three large radio broadcasting stations. In that year concessions were granted for the operation of several short-wave stations, and plans approved for the setting up of a radio telegraph installation.

Agriculture and Industry.—Chile's agriculture and industry are profoundly conditioned by its geography. Chile, with the Pacific lying along its entire length, as a primary determining factor, is a narrow strip, varying from about 75 to 250 miles in width, much of its area being occupied by ranges or foothills of the Andes, which form its eastern boundary with Bolivia and Argentina. The northern part, aside from its important minerals (especially nitrate, iodine, and copper), is mainly desert. Central Chile (the Santiago region), the oldest settlement, accounts for a little over half the country's population. Southern Chile, extending some 1,450 miles, from Concepción to Cape Horn, itself falls into two sections. The northern section, as far south as Puerto Montt, has varied physical features, including many lakes, and is inhabited by upwards of 100,000 Indians, mainly around Temuco, 80,000 Germans, and later Chilean settlers. It supports nearly 40 per cent of the country's cattle, and still has large stretches of virgin land. The southern section, from Puerto Montt to Cape Horn, with its unnumbered islands, untouched forests, glaciated mountains, and (toward the Cape) increasingly heavy winds and rains, is frontier country, containing only about one per cent of the population. Southern Chile is becoming more and more important in the country's economy. Like the North American west in pioneer times it is attracting thousands of settlers through the lure of free land. Whereas in the older parts of Chile some 90 per cent of the land was in 1942 in the hands of about 5,000 great proprietors, in the south, since 1929, the government has given free land in comparatively small holdings (based on 600 hectares) to 26,648 colonists.

Since 1939, agriculture and industry have also been affected in important ways through the program of the Development Corporation of Chile, organized under the law of April 28, 1939, with a capital of 1,000,000,000 pesos, with an additional 500,000,000 pesos for the promotion of low-cost housing. The main purpose of the corporation has been to aid Chile in achieving a more diversified economy, so that the country will not be so dependent as formerly upon its minerals.

Lack of balance in the country's general economy has been reflected in overdependence of the population upon such foods as wheat and sugar, with insufficient use of milk, eggs, vegetables, and fruits. In January 1945, an agricultural development plan was introduced by the Ministry of Agriculture calling for the expenditure of about $466,000,000 during a period of between 10 and 19 years. In addition to large increases in production of the protective foods, the program includes extensive provisions for the improvement and marketing of crops and of livestock, increased use of modern agricultural machinery and scientific techniques, construction of many roads, bridges, and irrigation projects, and large increases in the farm population through colonization. Both the government and private business are participating in the agricultural development program, the intention being to increase and improve production and distribution of essential food and commercial crops, and by this means to raise the purchasing power, health, and living standards of the entire farm population.

Chile's principal crops are wheat, barley, oats, haricots, corn, and potatoes, fruits and wines also being important. In April 1945, the harvesting of grain, fruit, and vegetables (with the exception of potatoes) was reported close to normal. Despite anticipated loss of some rice because of rains, authorization was reported in September for exportation of an additional 10,000 tons, whereas wheat had to be imported to meet a shortage.

Livestock.—Chile had in 1942 over 2,300,000 cattle, and in 1936 about 5,800,000 sheep, 570,000 pigs, and 528,000 horses, in addition to other domestic animals. Most of the wool is used by the textile industry, which supplies 85 per cent of Chile's silk and rayon products, and which employs 22 per cent of the country's workers.

Fish.—Chile has been called the "Eden of Seafood" (John W. White and Dorothy C. Benjamin, in the *Inter-American*, September 1945), but owing to lack of refrigerated storage and distribution arrangements fish is still a luxury when it could be a staple food. Plans of the Fish Commission of the Production Development Corporation called for the completion, in 1944, of a large

whaling station and conversion plant at Quintay Cove, near Valparaíso, and in 1945 produced large increases in the value of the fish and fish products of Talcahuano, the leading fishing port (near Concepción), and stimulated an important fishing development based on Antofagasta in north Chile.

Forests.—Preliminary estimates published in February 1945 put Chile's forest area at 30,742,391 acres, nearly 16 per cent of the country's total area. Artificial forests already in use cover 102,082 acres, with an additional 316,785 acres in formation.

Minerals.—The chief wealth of the country has been in its minerals. For many years the world's entire supply of natural nitrate of soda was supplied by Chile's arid northern zone, in deposits from 4,000 to 7,500 feet above sea level. Between 1910 and the Second World War, Chile's production of natural nitrate dwindled from 64 per cent to 8 per cent of the world's supply. Chile was still producing 66 per cent of the world's iodine (a by-product of the nitrate industry), and in 1941 ranked second (to the United States) among the copper producing countries, (with a total output of 453,528 metric tons), a position which was maintained for the first nine months of 1944. The Development Corporation, in its mining program, has stressed metallurgical research and increased production, not only of copper, but of zinc, gold, lead, manganese, sulphur, fertilizers, fuels (coal and oil), iron and steel. In 1944 lack of transportation facilities kept the total output of iron ore down to 17,670 metric tons, as compared with a normal output of 1,500,000 tons, but preliminary estimates for the coal output were placed at 2,275,719 metric tons, which would make it the highest for 20 years. Production for the first quarter of 1945 showed a decrease said to be due to lack of ships. Plans were under way during 1945 for the construction of a new steel plant on San Vincente Bay, near Concepción, at an estimated cost of $48,000,000, and for the scientific investigation of petroleum indications found in April near Punta Arenas, on the Strait of Magallanes (Magellan).

Manufacturing.—Extensive plans have been made for modernizing and expanding industries under the basic categories of: iron and steel, fuel and energy producers, transportation (land, sea, and air), agriculture (machinery for use on the farms, in the forests, and on the sea), food processing, construction (for production of cement and other materials), and miscellaneous industries covering a wide range.

During the first half of 1945 domestic manufactures (apart from many essential food products) showed general increases. Government inducements were being offered to farmers to produce greater quantities of agricultural goods, and further expansion in many industries was awaiting provision of the necessary machinery. In September, for example, construction work on the Pan American Highway was being hampered through delay in deliveries of modern equipment from the United States, and plans were under consideration for importing prefabricated houses to meet the continuing shortage in that field.

Construction.—During 1945, the Development Corporation planned extensive construction projects intended to promote expansion in agriculture, industry, and business. The list of projects (in addition to those for extending and modernizing transportation facilities) includes dams and canals for improving irrigation, sawmills and other wood-processing plants, and chemical, refrigeration, and hydro-electric plants. These constructions were planned as part of a huge program calling for eventual expenditure of about 8,000,000,000 pesos for the construction of factories and office buildings, houses (of which 300,000 were estimated to be needed), and government buildings. Immediate plans for the building of 2,551 houses in 26 cities and towns, at an estimated cost of 130,000,000 pesos, were announced by the Popular Housing Institute, 24,000,000 pesos being allotted to the Retirement and Social Provision Institute of the State Railways, to be spent during 1945 on housing for railway workers and their families. The Caja Nacional de Empleados Publices y Periodistas, an organization concerned with promoting social security for public employees and journalists, also laid plans for the construction of houses and office buildings valued at some $9,484,000 during a five-year period. Two cement plants, planned to supply most of the country's requirements, were expected to have increased their total monthly output to 20,000 tons by October 1945.

Finances.—In the national budget for 1945 as passed by Congress on Dec. 30, 1944, revenues and expenditures balanced at 4,749,000,000 pesos (equivalent to $153,200,000 in United States currency, in which 31 pesos = one dollar). The final budget for 1944 balanced at approximately 3,788,000,000 pesos. The large increase in expenditures for 1945 was accounted for by the inclusion of items formerly listed as "extraordinary", the most important increases being amounts granted to raise the salaries of state school teachers, and nearly 300,000,000 pesos to the Public Works Ministry. Increased revenues to meet these amounts were expected from the "extraordinary" tax on copper; a sharp rise in the surcharge on Chilean customs duties; payment by importers (of all but five essential commodities) of taxes at the rate of 31 pesos to the dollar instead of at the former special rate of 19.37 pesos to the dollar; increased property valuations; and a proposed lowering of exemptions on personal income surtaxes.

In April (1945), the government, as a countermeasure to the rising threat of inflation, sought authorization for wide control over prices, salaries, rents, and transportation charges, and over the distribution of raw materials and of all articles likely to be scarce because of the war. In August large issues of government bonds, for sale to the Central Bank and other financial agencies, were authorized to provide for the administration's agricultural, public works, and transportation projects.

Trade.—According to a report in the *Foreign Commerce Weekly* of April 14, 1945, Chilean trade, both domestic and foreign, like Chilean agriculture and industry, must be considered in relation to the general effort being made to broaden and stabilize the country's economy.

In July 1945, the minister of economy and Commerce was asked to formulate and apply a plan for making Chile more self-sufficient, and achieving a favorable international trade balance. The minister was given power to unify the government's various economic agencies, to exercise continued control over foreign trade and exchange, and over prices within the country, and to streamline Chile's domestic commerce in the interests of both producers and consumers.

At the end of July, Chile concluded a trade agreement with the United States granting the latter country tariff reductions for one year on

many manufactured articles, including drugs and chemicals, iron and steel products, paper, clothing, and textiles. On Sept. 12, 1945, it was granted a loan of $20,000,000 from the Export-Import Bank (in Washington) to finance the construction of a steel mill.

In 1944 Chile's exports amounted to 944,000,000 gold pesos, its imports to 698,700,000 gold pesos; the export figures representing gains of 8.9 per cent and 9.4 per cent over those for 1943 and 1942 respectively, and the import figures representing gains of 9.8 and 12.4 per cent over those for 1943 and 1942.

Principal Events.—Apart from the efforts made to strengthen its national economy (see foregoing sections), Chile also played its part in international affairs during 1945. On Dec. 11, 1944, Chile had become the sixth country in Latin America to recognize the Soviet Union. On Feb. 14, 1945. its representative in Washington (along with representatives of Peru, Paraguay, and Ecuador) signed the Declaration of the United Nations, and it was announced that Chile had declared a state of belligerency with Japan, the Chilean Senate voting a formal declaration of war on April 11. In January 1945, Chile participated in the inter-American business conference at Rye, New York, where the Chilean representatives, concerned for the future of two of Chile's leading industries—copper and nitrate—declared in favor of internationally supervised agreements for restricted marketing. In February and March Chile took part in the Inter-American Conference on Problems of War and Peace, in Mexico City (see PAN AMERICAN AFFAIRS), and was among the 46 nations originally represented at the San Francisco Conference (April-May 1945). The Chamber of Deputies ratified the United Nations Charter on September 17. On the following day the Chilean ambassador to Argentina delivered a sharp public rebuke to Vice President Juan Perón of Argentina, aimed at his dictatorial policy. In the meantime, Chile's general elections, held on March 4, had resulted in gains for the Conservatives, Liberals, Independents, and Agrarians, giving them a majority of one in the Senate, although the government coalition parties still claimed a majority in the Chamber of Deputies. The election results were expected to be reflected in Cabinet changes. The Chilean Cabinet resigned on September 20, permitting President Juan Antonio Rios to appoint a new government before his intended absence from the country. President Juan Antonio Rios visited the United States in October 1945, spending several days in Washington and later going to New York for a week.

Two earthquakes were reported in the Santiago area during the year, one on January 17, the second on September 13, extending over 200 miles and causing some loss of life and much damage to property. On June 19, a fire at the mine of the Braden Copper Company at Sewell resulted in the death of 350 people.

CHINA. The outstanding event of the year 1945 in China was the victorious conclusion of the nation's eight-year War of Resistance against Japanese aggression, which began with the Lukouchiao incident on July 7, 1937. It marked the end of the long night of enemy invasion and occupation, of fighting against unequal odds, of living under the staggering burdens of a war that had gone into its ninth year. For China the first eight months of 1945 were not unlike those of the preceding war years—except that in the end victory came.

Military Operations. — *Burma-Yunnan.* — The battle for China's lifeline ended in victory when the Chinese Expeditionary Force clearing the enemy from North Burma joined hands with Chinese troops pushing down from West Yunnan. The two forces met at Mu-se on January 21; seven days later the first convoy in almost three years rolled into China over the Ledo-Burma Road, renamed the Stilwell Road by President Chiang Kai-shek. The Chinese forces pushed southward to recapture Lashio, March 7, and Hsipaw, March 18, concluding the Chinese Army's mission in Burma. Chinese casualties in the Burma-Yunnan campaigns totaled more than 80,000, of which 30,000 were killed. *Honan-Hupeh:* The enemy started a campaign west of the Peiping-Hankow Railway on March 21, directed at Laohokow and Nanyang, in western Hupeh and western Honan, respectively. Starting with 80,000 men, the enemy moved rapidly, capturing Laohokow on April 11. The next day the Chinese recaptured the city and counterattacked; by April 22 the front had reverted to its original position. In western Honan, the Japanese went beyond Nanyang and reached Hsihsiakow in early April, where later they were stopped in their drive westward. *Hunan:* The enemy launched a major offensive, employing 100,000 men, on April 9, directed at the important airbase city of Chihkiang. The drive was smashed on May 10. Chinese forces rewon all lost points and by the end of June were fighting outside Paoking, major enemy base. Military observers described the Chihkiang victory as "a turning point."

The main drives of the Chinese general counteroffensive were launched along the "invasion coast" of Fukien and Chekiang and in the southwestern provinces of Kweichow and Kwangsi, where toward the end of 1944 China's armies had turned back a dangerous enemy thrust at Kweiyang, threatening Chungking, the wartime capital. *Fukien-Chekiang:* Pushing up the coast, Chinese forces recaptured Foochow, first major port city to be liberated, on May 18, and Wenchow, Chekiang port, on June 18. By the middle of July they had driven to within 50 miles of the nation's capital, Nanking. *Kweichow-Kwangsi:* The Chinese followed up their success by cutting the enemy north-south corridor, capturing Hochih, May 20, and Nanning, May 27. Climaxing the series of drives was the recapture of Liuchow, June 29, and Kweilin, July 27. The winning of these two key Kwangsi cities marked the last important fighting in the China theater shortly before Japan's surrender.

On August 21, Japanese surrender envoys arrived at Chihkiang, western Hunan, for instructions on the surrender of all Japanese forces in China, (except Manchuria) Formosa, and Indo-China, north of 16° north latitude. Chinese armies began to move in to reoccupy important points in the former enemy-occupied areas; the first Chinese and American airborne units landed at Nanking and Shanghai, August 27. Japan's official surrender of her 1,090,000 troops in the China theater took place on Sept. 9, 1945, at Nanking, seven days following the ceremony on board the U.S.S. *Missouri.*

The cost of victory in Chinese military casualties alone in the eight years of war totaled more than 3,500,000, of which 1,800,000 were killed and 1,700,000 wounded and missing. The success of Chinese arms in the closing stages of the war was largely due to the drastic reorganization of the army, aimed at the improvement of its fighting quality. Instead of trying to maintain a

CHINA



The terrific devastation of Kweilin is shown in this photograph.



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V-J Day in Chungking. Soldiers parading with banners as people watch from windows of every house.

huge army of 5,700,000 men, it was decided to dismiss one third of the personnel and abolish superfluous organizations. By April, altogether 1,410 military units had been dissolved and 1,100,000 men taken off the army payroll; the numerical strength of the army was expected to be further reduced to 3,500,000 by the end of 1945. An important contribution to the successes in China was the close Chinese-American teamwork not only in the field but in large-scale training of the Chinese Army conducted with the aid of the United States Army in China.

Economic Affairs.—The economic situation was not immediately improved with the opening of the Stilwell Road. In the last three years of virtual blockade, economic and financial difficulties had mounted, especially the rapid deterioration of wartime living, caused by warborn inflation, and a general breakdown of transportation.

China's retail price index for May 1945 was 1,435 times the basic figure of June 1937, a month before the outbreak of war. The price of rice in June 1937 was Ch$11 per *shih tan* (175 lbs.); in July 1945, the same amount cost Ch$12,000. The 1945 budget was about 190 times larger than that of the fiscal year preceding the start of the war. The enormous cost of the war was borne by taxation and savings. The adoption of the policy of selling gold to withdraw the redundant purchasing power of the public resulted in the withdrawal of 80 billion dollars of *fapi* (legal tender) by June.

On January 23 the Executive Yuan (Council) adopted a series of proposals on tax and administrative reforms, specifying the abolition of taxes on certain products which yielded little revenue but caused much hardship to the people; the suspension of state monopolies on salt, tobacco and matches, which had been burdensome to the people; and the scrapping of overlapping organizations. A total of 509 offices under the Finance Ministry, with a staff of 17,996 persons, were either abolished or amalgamated, saving the government around Ch$1,614,000,000 in 1945.

The Chinese War Production Board which had been set up with the aid of American industrial experts reported that the production of iron in May, 1945, was 46 per cent higher than the preceding November and 50 per cent higher than the average monthly production of 1944; the production of steel in May was 52 per cent higher than last November and 68 per cent higher than the average monthly production of 1944; and alcohol production in May was 2.7 times as high as the same month in 1944.

The problem of wartime transportation—in June 1945, Free China had a total of only 872 miles of railways and less than one tenth of the prewar number of rolling stock and cars—was tackled by a co-ordinating agency, the War Transport Board, set up on New Year's Day. Another Chinese-American effort, the board's first big job was the management of the newly opened Stilwell Road although its supervisory functions also extended over rail, air, and waterways.

Political Developments.—The two basic issues of unity and democracy continued to dominate the Chinese political scene. At war's end, prospects for settlement of these two important issues were bright. The government followed its declared policy of seeking a political solution to the Chinese Communist problem. Negotiations which began in June 1944 and proved fruitless were resumed in the winter of 1944–45. Reporting on the second phase of the talks, President Chiang, in an address on March 1 before the opening meeting of the Preparatory Commission for Inauguration of Constitutional Government, declared that the government had met the issues raised by the Communists with concrete proposals but these were rejected. Friction between the government and Communists resulted in a clash in Shensi in July. More trouble arose during the period of Japan's surrender.

On August 14, President Chiang invited Mao Tse-tung, leader of the Chinese Communist Party, to Chungking to confer on national problems. Five days later, he again urged the latter to come. On August 26, the day that Moscow made public the terms of the new Chinese-Russian Treaty, the Communist leader accepted after a third invitation. On August 28, Mao, escorted by United States Ambassador Hurley, arrived to begin talks with government leaders on national unity and reconstruction, which observers believed had a good chance of success.

Progress toward political democracy and constitutionalism received new impetus from the government's decision to terminate the period of political tutelage and inaugurate constitutional government. In his New Year message, President Chiang declared that the National Assembly would be convened before the end of the war to adopt and promulgate a constitution; on March 1, he reiterated his promise and set November 12 as the date for the calling of the assembly, subject to the approval of the Kuomintang Congress. The Sixth Kuomintang National Congress, convening on May 5, approved the November 12 date. At the inaugural meeting, President Chiang, who was re-elected director general of the party, again declared that the inauguration of constitutionalism should not be delayed. Before the Congress ended on May 21, it had outlined a revised program and policy for the Kuomintang and endorsed the government policy of solving the Communist problem through political means. On June 13, the government announced three measures calling for abolition of Kuomintang branches in the army and in educational institutions and popular election of district and provincial people's political councils.

The Fourth People's Political Council on July 19 agreed to leave the date for the convocation of the National Assembly to the government's discretion. It also urged the widest representation in the asssembly and that, prior to its meeting, the government should continue to work for unity through political means, insure freedom of speech, recognize the legal status of political parties and complete the setting up of people's representative organs in all Free China provinces.

Important Changes in the Government: Generalissimo Chiang and Dr. H. H. Kung resigned from respective posts as president and vice president of the Executive Yuan. Dr. T. V. Soong and Dr. Wong Wen-hao, appointed successors, respectively. Dr. Wang Shih-chieh, minister of information, was named minister of foreign affairs, a post that had been concurrently held by Dr. Soong. Dr. K. C. Wu, political vice minister of foreign affairs, was appointed minister of information; Dr. Hollington K. Tong, vice minister of information, resigned. Kan Nai-kuang was named political vice minister of foreign affairs, and Liu Chieh, administrative vice minister of foreign affairs.

Foreign Relations.—China, as one of the sponsoring powers, played an important role at the United Nations Conference on International Organization at San Francisco. The United States,

the Soviet Union and the United Kingdom agreed to support China's three proposals put forth at Dumbarton Oaks in 1944. At the first plenary session, Dr. T. V. Soong, chairman of the Chinese delegation, gave China's message to the conference in these words: "We must not hesitate to delegate a part of our sovereignty to the new international organization in the interests of collective security." On May 18, Dr. V. K. Wellington Koo, one of China's ten delegates, said the Chinese delegation was guided by two motives: (1) to contribute China's part in setting up a machinery through which peace and security may be maintained, and (2), to co-operate with the other United Nations in promoting the welfare of all people and in establishing the rule of law in international conduct. Before UNCIO closed, China and Brazil jointly proposed the establishment of an international health organization, which received unanimous support.

On July 31 the Supreme National Defense Council approved China's adherence to the United Nations Charter and the Bretton Woods Agreement. On August 25 the charter, which had been approved by the Legislative Yuan ten days earlier, was signed by President Chiang Kai-shek.

China and the Soviet Union signed a thirty-year Treaty of Friendship and Alliance and a series of supplementary agreements in Moscow on August 14, the day Japan surrendered. The result of talks Premier T. V. Soong held with Generalissimo Stalin on two separate visits to Moscow in June-July and August, conclusion of the treaty and its related agreements was regarded by many high Chinese officials as laying a cornerstone for peace in Asia and the world. On August 26 Moscow made public the terms of the new agreements, which were ratified by both governments on August 24.

Main points of the treaty and the supplementary agreements: (1) mutual military assistance against future Japanese aggression; (2) Russia to render China moral support and military assistance to be exclusively given to the National Government as the central government of China; (3) Russia to respect China's full sovereignty over the Three Eastern Provinces (Manchuria) and to withdraw from those provinces within three months after Japan's formal surrender; (4) joint ownership and administration of the Chinese Changchun Railway (the Chinese Eastern Railway and the South Manchurian Railway combined); (5) Port Arthur to be a joint Chinese-Soviet naval base and Dairen a free port, both under Chinese administration; (6) China to recognize the independence of Outer Mongolia if its people so desires under a plebiscite; and (7) Russia to avoid interference in internal affairs of Sinkiang.

An important statement on China's foreign policy was made by President Chiang on August 24 before a joint session of the Supreme National Defense Council and the Kuomintang Central Executive Committee. He declared that China's policy based on Dr. Sun Yat-sen's Principle of Nationalism sought, externally, China's national independence and freedom and, internally, equality for all racial groups. Main points of his address were: China had regained her sovereign rights in the Northeastern Provinces, Formosa, and the Pescadores; Korea would be restored her independence and freedom; independence of Outer Mongolia should be recognized through legal procedure and Tibet be granted a high degree of autonomy; China hoped to resume normal and friendly relations with Burma, Thailand (Siam) and Indo-China; and changes in the status of Hongkong would be introduced only through friendly negotiations.

Sweden signed a new treaty with China on April 30, relinquishing all extraterritorial and related rights in China. On June 8 China and the Dominican Republic concluded an agreement providing for unrestricted travel of nationals of both countries in the territory of each other. France agreed to the return to China of the leased territory of Kwangchowan, under a new Chinese-French convention signed on August 18, renouncing all rights in China's favor.

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CHIROPRACTIC. The science of chiropractic is based on the theory that disease results from a lack of normal nerve function. The efforts of the chiropractic physician are directed toward the restoration of the normal functioning of the nerve system, largely through articular adjustment and manipulation of the spinal column. Supplementary measures, such as light, heat, air, water, diet and exercise, are used when indicated. Since 1895 more than 30 million people have availed themselves of the health services offered by some 20,000 doctors of chiropractic throughout America.

Extending whole-hearted co-operation to the federal government in the prosecution of the Second World War, the National Chiropractic Association continued to render free chiropractic health service to all men and women wearing the uniform of the armed forces.

Nearly one thousand chiropractors now serving in the armed forces have been granted honorary membership in the American Society of Military Chiropractors, in recognition of their professional services to their country. A service publication, *The Chiron Call*, was distributed monthly during the war period to all chirons in the armed forces through the courtesy of the National Chiropractic Association.

Recognizing the imperative needs of postwar planning for returning chiropractic veterans, the National Chiropractic Association designated Sept. 18, 1945, as Chiropractic Veterans Rehabilitation Day, and urged its thousands of members to set aside their gross earnings for the Chiropractic Veterans Rehabilitation Fund, which will be used exclusively for the purpose of providing "refresher" courses for returning chiropractic veterans and re-establishing them in the private practice of their profession in civilian life.

The National Chiropractic Association created a new organization, the Chiropractic Research Foundation, Inc., which was organized exclusively for charitable, scientific and educational purposes. Incorporation papers for this $1,000,000 humanitarian project were filed during the convention in July, 1944, setting forth the objects and purposes of the foundation.

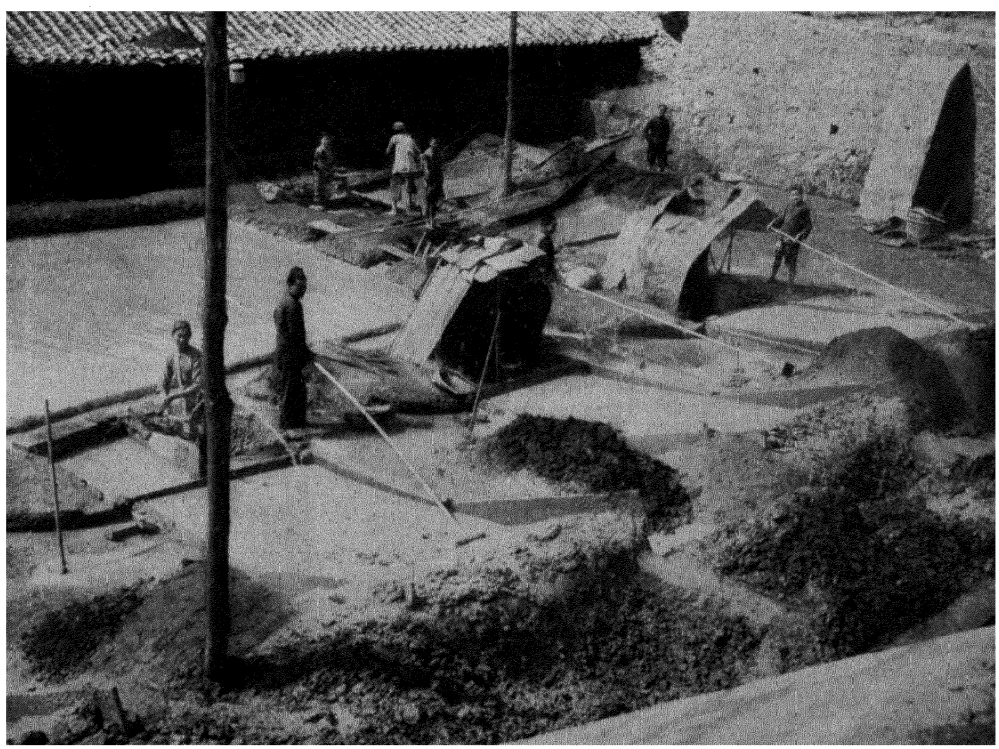
During the first half of the year, nearly $250,000.00 was voluntarily pledged to the Chiropractic Research Foundation, Inc., by leading chiropractors throughout America. Thus, it seems assured that the initial goal of $1,000,000 will be reached before the Golden Jubilee convention which will be held in Toronto in July 1946. It is then planned to embark on a promotional campaign among the public—especially the millions of chiropractic beneficiaries—to raise $25,000,000 during the next five years. The funds raised will be placed in trust to be used exclusively for the

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A familiar scene in China during the many years of war with the Japanese.



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Tin mines. Tailings from the dressing table still contain a small percentage of tin (about .7 per cent) which is removed by workmen from the waste of the plant. Only a small percentage of tin is recovered in this manner.

purposes of scientific research, college endowment, chiropractic education and hospital advancement.

The general convention for 1945 was cancelled at the urgent request of the Office of Defense Transportation, and a meeting of the executive board of directors and executive officers was held in Chicago, Ill., in July.

The Canadian Memorial Chiropractic College, teaching a scientific course of four collegiate years, was established in Toronto, Ontario, during the year, as scheduled. The first enrolment date for students was in September 1945, and nearly 100 applications for enrolment had been accepted on the opening date.

Extensive plans are under way for the enrolment of returning veterans in chiropractic colleges throughout the country since a marked interest has been indicated by many service men and women in choosing chiropractic as a postwar professional career. It has been determined that the accredited chiropractic colleges teaching a minimum professional course of four collegiate years of not less than 3,600 hours will be the choice of most returning veterans since this will simplify their recognition before the state boards of chiropractic examiners in the various states.

As of September 1945, 43 states have granted legal recognition to chiropractic practitioners—all but Louisiana, Massachusetts, Mississippi, Texas and New York. The practice is also legally regulated on a four-year basis in the District of Columbia, Alaska, and Hawaii; British Columbia, Alberta, Ontario and Saskatchewan, in Canada, and several foreign countries.

L. M. ROGERS,
Executive Secretary, National Chiropractic Association, Inc.

CHISHIMA ISLANDS. See KURILE ISLANDS.

CHOSEN. See KOREA.

CHRISTIAN SCIENCE. The religion founded by Mary Baker Eddy and represented by the Church of Christ, Scientist. During the year 1945, The First Church of Christ, Scientist, in Boston, Mass., and its branches located throughout the United States, co-operated through the Christian Science War Relief Committee with other war relief groups. Christian Science war relief clothing was made available to sufferers regardless of their religion. During the first six months of 1945 the total number of garments sent by this committee to Continental Europe amounted to 970,000. This did not include the vast number of knitted garments that were sent to men and women in the armed forces of the United States. With the end of the war in Europe, a Christian Science Postwar Relief Committee was formed.

Through another committee, the Christian Science Camp Welfare Committee, the Christian Science church maintained Christian Science wartime ministers and volunteer workers who ministered without charge to the spiritual and material needs of men and women in the armed forces of the United States and its territories, as well as Canada and some overseas countries. Nearly 600 such workers were under the supervision of this committee.

During 1945 there were 25 Christian Science chaplains in the army and one in the navy. Four of these chaplains received bronze stars for meritorious service, and three members of the unit in which one chaplain was serving received presidential citations.

The literature published by The Christian Science Publishing Society, which includes *The Christian Science Journal*, a monthly publication listing churches, societies, and accredited practitioners, was available at all Reading Rooms maintained by the churches, as well as at all rest rooms and recreational centers provided by The Mother Church for servicemen and women.

In radio, transcribed programs prepared in The Mother Church were broadcast over more than one hundred stations throughout the United States and Canada. The Mother Church also continued its periodic broadcasts on Sunday *Columbia Church of the Air* programs over the Columbia Broadcasting System.

The Christian Science Monitor, an international daily newspaper, published by The Christian Science Publishing Society, maintained its usual large staff of correspondents throughout the world, including war correspondents in all theaters. The *Monitor* received a fire-prevention award of a $500 gold medal for outstanding service in the field of fire-prevention. It also received the Helms Athletic Foundation award in recognition of noteworthy achievement in the realm of sports. It won first honorable mention in the over-50,000 circulation group, in the annual exhibition of newspaper typography conducted by N. W. Ayer and Son, Inc.

WILLIAM D. KILPATRICK,
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CHRISTMAS ISLAND. Name of two islands under British sovereignty. (1) The largest atoll in the Pacific Ocean, more than 100 miles in circumference, 164 miles southeast of Fanning Island, and likewise within the Gilbert and Ellice Islands Colony (see WESTERN PACIFIC ISLANDS, BRITISH). Christmas Island has an area of 94 square miles, and the population in 1937 numbered 47, of whom five were whites. At the main settlement is an anchorage safe for vessels in calm weather. The Central Pacific Coconut Plantations, Limited, has leased the island for a term of 87 years from Jan. 1, 1914, having the exclusive right to plant coconuts (1,200 acres under cultivation), manufacture copra, and export coconut oil, pearl shell, and guano. The island was discovered by Capt. James Cook in 1777, annexed by Great Britain in 1888, and included in the colony in November, 1919. (2) An island in the Indian Ocean, 190 miles south of Java, administratively within the Singapore Settlement of the Straits Settlements (see BRITISH MALAYA). The area is 60 square miles, and the population in 1941 was 1,431. It was annexed in 1888, and in 1891, 6,000 acres were leased for coconut planting. The rich phosphate deposits subsequently gave the island considerable economic importance; 238,006 tons of phosphate of lime were exported in 1940. Japanese forces occupied Christmas Island on April 10, 1942.

CHRONOLOGY FOR 1945. See under UNITED STATES; WORLD WAR, SECOND.

CHURCHILL, Winston Leonard Spencer, British statesman and man of letters: b. Blenheim Palace, Oxfordshire, Nov. 30, 1874. He is the son of Lord Randolph Henry Spencer Churchill and Jeannette (born in Rochester, N.Y., in 1854), daughter of Leonard Jerome, proprietor of the New York *Times* and a banker. His love of soldiering as a young man, and the sound strategical concepts which he displayed in later years, traits which he has in common with his great ancestor John Churchill, the first duke of Marlborough. A man of many parts, and with great zest

for life, he possesses considerable skill as a landscape painter. In his youth he was an ardent polo player, and in middle life he learned to pilot an airplane, and took out a union card as a qualified bricklayer. The courage which he showed in so many fields reached its heights in his long career in politics. His mastery in debate, his brilliance as an orator, his independence, rank him among the outstanding parliamentarians of his day—indeed, among the greatest figures in British history. In his speeches, so carefully prepared and rehearsed, and in his forceful and lucid writings, he exhibits a knowledge of the English language that has seldom been equalled.

After attending Harrow School, where he coupled a conspicuous distaste for Latin with an early enthusiasm for his own language, he secured entry to Sandhurst Military Academy (the British "West Point") at the third attempt, and on being commissioned in 1895 he was gazetted to the 4th Hussars. The same year, while on leave, he visited Cuba as an observer in the Spanish campaign against the guerrillas, and in 1896 he obtained a transfer to the Indian Army. Here he polished his education by studying philosophy, history, and economics, and during 1897, as an officer in the 31st Punjab Infantry, he served on the Northwest frontier in the Malakand and Tirah operations. On these campaigns he was war correspondent for the Allahabad *Pioneer* and the London *Daily Telegraph*, and from the experience came the first of his numerous books, *The Story of the Malakand Field Force* (1898), a best seller in which he dared to criticize his superior officers. *Savrola*, his undistinguished and only attempt at fiction, was shortly published serially by *Macmillan's Magazine*, and appeared in book form in 1900. Sir Herbert (later Lord) Kitchener accepted him with reluctance in 1898 for service in the Egyptian campaign for reconquest of the Sudan; riding with the 21st Lancers in the battle for Omdurman, he participated in one of history's last classic cavalry charges. He reported the campaign for the London *Morning Post*, and later recorded it in *The River War* (1899), another highly critical, though accurate, work. Deciding to abandon army life for politics, in 1899 he contested the Oldham parliamentary division as a Conservative; and after failing to win the seat, he sailed for Capetown to report the South African War for the *Morning Post* at the highest salary yet paid to a war correspondent. When an armored train in which he was riding in November 1899, two weeks after arrival, was ambushed by the Boers in Natal, he helped in the defense; he was taken prisoner, however, his captor being Louis Botha, later, and largely with the support of Churchill, the first premier of the Union of South Africa. Because of Boer clemency he was not shot for exceeding the functions of a journalist, but was imprisoned at Pretoria, whence he escaped within a month with a price on his head. Making his way across Portuguese East Africa, he reached Durban, in Natal, where he was commissioned lieutenant in the South African Light Horse; he saw a good deal of the subsequent fighting up to the capture of Pretoria, where he helped release his erstwhile fellow prisoners. He gave an account of his experiences in *London to Ladysmith via Pretoria* (1900) and *Ian Hamilton's March* (1900).

Back in England before the end of 1900, he stood once again as parliamentary candidate at Oldham, on this occasion successfully. Soon, in the House of Commons, he began to assail the policies of the Conservative government under whose banner he was supposed to be serving, opposing increases in the army and urging leniency in the treatment to be meted out to the Boers. The tariff reform proposals of Joseph Chamberlain in 1903 met with his uncompromising opposition, and over this issue he left his party in the summer of 1904. At the early age of 31 he obtained his first ministerial post, the minor one of under secretary of state for the colonies, in the Liberal administration formed in 1905 by Sir Henry Campbell-Bannerman. At the ensuing general election he was returned to Parliament by the voters of the Northwest Manchester division, and with his chief, the 9th Earl of Elgin seated in the Lords, he became the spokesman for his party in the Commons. His ability in piloting legislation to transform the Transvaal and Orange Free State into British colonies presaged the brilliant future that lay ahead. The year 1906 saw publication of his *Life of Lord Randolph Churchill*, an authoritative two-volume biography by an admiring son; and in *My African Journey* (1908) he recorded a tour through East Africa from Mombasa to the Sudan by way of Uganda.

In 1908, now 33 years old, he became president of the Board of Trade in the Cabinet reconstructed by Herbert Asquith; in that year, too, he married Clementine Ogilvy Hozier (who was to bear him a son and four daughters), "and," as he later confessed, "lived happily ever afterwards." Repudiated at Northwest Manchester, he was reelected by the voters of Dundee, and now he showed his interest in social legislation by introducing labor exchanges and helping to create unemployment insurance. For his support of the budget of David Lloyd George imposing much additional taxation, he was denounced as a traitor to the wealthy class to which he belonged. Transferred to the Cabinet post of home secretary in 1910, he reduced or cancelled numerous prison sentences and in several ways sought to ameliorate the rigors of imprisonment. Attacks were made upon him in Parliament and the press for his part in the "battle of Sidney Street," a siege of foreign criminals in a London slum on Jan. 3, 1911. Before he left the Home Office, he secured passage of bills setting up a minimum wage in certain sweated industries, limiting hours of work in shops, and protecting coal miners.

Disagreement between army and navy heads as to the strategy to be adopted in the event of war, and the aspirations of Kaiser Wilhelm II for "a place in the sun," clearly indicated in 1911 the need for a strong man at the Admiralty. Churchill was the obvious choice for First Lord, and as soon as he assumed his duties he planned a great increase in naval strength; before long, too, he created the navy's first air service. In July 1914, acting entirely on his own responsibility, he forbade dispersal of the fleet after a royal review off Spithead, with the result that, when hostilities commenced two weeks later, the British Navy was already fully mobilized. He personally accompanied a British naval landing force to Antwerp the following October, and though it failed to defend the city, the German advance was slowed and the Channel ports thus saved. The Dardanelles campaign of 1915, for which Churchill had pressed, proved a blunder through the inadequacy of others, precipitating a public quarrel with Admiral Lord (John Arbuthnot) Fisher and resulting in a Cabinet crisis. With formation of a Coalition government he was ousted from the Admiralty, and in November 1915, after a short tenure of the minor Cabinet post of chancellor of the duchy of Lancaster, he resigned.

Forthwith he went to the Western Front as a major in the second Grenadier Guards, and with the rank of lieutenant colonel he was given command of the 6th Royal Scots Fusiliers in the trenches of northern France. He resumed his seat in the House of Commons in the autumn of 1916, and the next year he succeeded Lloyd George, now prime minister, as minister of munitions. In 1915, while at the Admiralty, he was one of the first to encourage development of what became known as the tank, and now he put an improved model into large-scale production; German Gen. Erich von Ludendorff is authority for the statement that in no small measure the tank decided the later course of the war.

In the reorganized Coalition Cabinet of 1919 he was made secretary for war and air minister, and soon was widely denounced for bolstering up the White Russians in their futile struggles against the Bolsheviks. Appointed colonial secretary in 1921, his main preoccupation was with the many problems of the Middle East; long a supporter of home rule for Ireland, he also participated in the negotiations resulting in establishment of the Irish Free State. He went into temporary retirement when repudiated by the Dundee electors in the 1922 general election, for the first time since 1900 being without a seat in Parliament. During this period he turned once more to writing, preparing the first installments of *The World Crisis* (1923-29), a colorful five-volume record of the First World War in which he strongly denounced the costly strategy employed on the Western Front.

When Churchill again entered the political arena, in 1924, he offered himself as an independent anti-Socialist, attacking the Labor Party which had by now supplanted the Liberals as senior opposition to the Conservative government. Unsuccessful in the Westminster Abbey parliamentary division, he secured election at Epping, once more as a Conservative after an absence from the party of nearly 20 years. Appointed chancellor of the exchequer in the Cabinet of Stanley Baldwin, he presented to Parliament five successive annual budgets; in the first, he returned Britain to the gold standard, a step which proved ultimately disastrous and precipitated the General Strike of 1926.

Advent of the Labor Party to office in 1929 left him once more without a ministerial post, though still with a seat in the House. He made a lecture tour in the United States in 1930, traveled much in Europe, and again took up his pen. In rapid succession he published *My Early Life* (1930; New York ed., *A Roving Commission*, 1941), a lightly written autobiography; *The Eastern Front* (1931), a supplement to *The World Crisis;* and *Thoughts and Adventures* (1932), a pleasant miscellany. These were followed by the four-volume *Life of Marlborough* (1933-38) a powerful vindication of his hero; the well-informed *Great Contemporaries* (1937); *Arms and the Covenant* (1938), a volume of speeches; and *Step by Step* (1939), a collection of his newspaper articles.

As early as 1932 he was warning his countrymen against the resurgent German might, but his voice, raised repeatedly in succeeding years, was unheeded by a Britain trusting that appeasement would mollify Adolf Hitler. Averse, however, to changes in British constitutional affairs, from his seat in the House he fought the Government of India bill of 1935 giving a more liberal measure of self-government to that country; in 1936 he was the one man of public fame to defend Edward VIII when confronted with the choice between a wife of his own choosing and the Crown; and in 1937 he assailed the release of the British naval ports in southern Ireland to Eamon de Valera. Although these denunciations of Conservative policies effectively debarred him from a Cabinet post, he was not to be intimidated—and in some matters time was to bring its justification.

With Britain and France humbled by German annexation of Austria and the partition of Czechoslovakia, public opinion rallied behind Churchill, and when war was declared on Germany, Sept. 3, 1939, he was the country's instinctive choice for first lord of the admiralty. Resuming the post he had been occupying when the First World War broke out a quarter of a century earlier, he inspired the nation with such confidence that, on April 4, 1940, he was given supreme administrative command of all naval, military, and air forces. On May 11, as German troops poured into the Lowlands, he succeeded Neville Chamberlain as prime minister and assumed the added post of minister of defense. "I have nothing to offer but blood, toil, tears, and sweat," he told the House of Commons, ". . . You ask, what is our policy—I will say: It is to wage war by sea, land, and air, with all our might and with all the strength that God can give us. . . . . You ask, what is our aim—I can answer in one word—victory."

The career of Churchill in the war years that followed epitomizes the history of Britain. In 1940, while stirring the nation to immense efforts to avert invasion, with the assent of his Cabinet he took the momentous decision to send to Egypt Britain's sole remaining armored division—so that the highway to Asia might be preserved. With German submarines sinking much British shipping, in 1941 he procured from the United States 50 over-age destroyers in exchange for leased bases in the West Indies. When demands for a second front in western Europe became insistent in 1942, on a visit to Moscow he convinced the Russians that such a course, if taken prematurely, might end in a disaster which would delay German defeat for many years. None gave more enthusiastic support than he to the Allied plans for landing in North Africa in 1942 and in Normandy 18 months later.

In loyalty to Britain's allies he was unwavering. With France defeated and about to seek an armistice with Germany, he appealed to her to hold fast, even suggesting an amalgamation of the two states, with a common citizenship and joint organs of government, by means of a solemn act of union. Nor did he lose hope for her: "Never will I believe that the soul of France is dead. Never will I believe that her place among the greatest nations of the world has been lost forever." Such faith was demonstrated in the continued support he gave to General de Gaulle, unchanged even when the British Navy sank French warships anchored at Oran: "I leave the judgment of our action, with confidence, to Parliament. I leave it to the nation, and I leave it to the United States. I leave it to the world and history." Despite this friendship, however, in May 1945 he sent to de Gaulle a request, which had all the aspects of a peremptory order, to cease fighting the young Levantine republics.

For 20 years an avowed enemy of the Soviet Union, he forgot old animosities when the Germans invaded Russia in 1941: "Any man or State who fights on against Nazidom will have our aid. Any man or State who marches with Hitler is our foe." Twice Churchill flew to Moscow to meet

Marshal Stalin, and with President Franklin D. Roosevelt he conferred with Mr. Stalin at Teheran and at Yalta; and Churchill was responsible for the ratification in 1942 of a 20-year treaty of friendship between Russia and Great Britain. He was on terms of close friendship with President Roosevelt from the time they met off the Newfoundland coast to draft the Atlantic Charter. At Washington, in December 1941, they set up a Combined Chiefs of Staff organization for joint direction of the war; and before a joint session of Congress, Churchill avowed his "hope and faith, sure and inviolate, that in the days to come the British and American peoples will, for their own safety and the good of all, walk together side by side in majesty, in justice, and in peace." He visited the United States again the following June, and in 1943 and 1944 following conferences at Quebec; he met President Roosevelt in North Africa at the close of 1942, and a year later, at Cairo, the two leaders conferred with Chiang Kai-shek and President Inönü of Turkey.

Despite the fact that, as premier, Winston Churchill traveled 150,000 miles by air to visit the fighting fronts, and to confer with Allies and neutral nations, he never lost contact with domestic affairs. While departmental matters were handled by members of his Coalition Cabinet, leaders in which were of the Labor and Liberal opposition parties, he guided much of the postwar planning. In March 1943 he put forward a four-year plan for reconstruction after conclusion of hostilities, and the next year he sponsored numerous proposals for domestic reform: an enlarged social insurance plan, extending that which he, as a Liberal, had introduced 30 years earlier; health services which were to be freely available to everybody; and a partnership of the state with private enterprise to restore the export industries without which Britain could not survive. Although his constant, insistent deference to the House of Commons was part of the antique cast of his mind, he possessed the moral temperament which the part of prime minister required in time of war. He felt most deeply what all felt when the crisis came, and had the confidence of the people that he would do most effectively what all wished to see done.

It was in the war years, perhaps, that his rich and colorful oratory reached its heights, though his speeches sometimes lacked measure, he used too many adjectives, and he constantly interrupted the evolution of his theme to catch some image or some phrase which had glittered at him from the outskirts of his mind. Nevertheless the benches were packed when he spoke in the House, the sound of his voice varying its tones from lusty recital to half-humorous comment; and for his memorable broadcasts he had all the world for an audience. After the remnants of the British Army had been evacuated from Dunkerque, he promised Parliament: "We shall fight on the beaches, we shall fight on the landing grounds, we shall fight in the fields and in the streets, we shall fight in the hills—we shall never surrender"; and two weeks later: "Let us therefore brace ourselves to our duty and so bear ourselves that, if the British Commonwealth and Empire lasts for a thousand years, men will still say, 'This was their finest hour.'" During the Battle of Britain he paid tribute to the Royal Air Force: "Never in the field of human conflict was so much owed by so many to so few." When suggestions were coming from across the Atlantic in 1942 as to the future status of dependent peoples, he warned: "We mean to hold our own . . . I have not become the King's First Minister in order to preside over the liquidation of the British Empire." At Harvard, on receiving an honorory degree in 1943, he said: "Let all of us who are here remember that we are on the stage of history, and that whatever our station may be, whatever part we have to play, great or small, our conduct is liable to be scrutinized not only by history but by our own descendants."

He led the British Empire through nearly six years of war against Germany, bringing it to victory after its greatest crisis since Napoleonic times. Often in his long political career he had stood alone. Now, as Marlborough before him, he was the incarnation of British tenacity, the savior of his nation, the spokesman of the highest aspirations of a Europe at war. He was the statesman who laid the basis for the grand alliance of the United Nations, and therewith one of the principal architects of victory. However, notwithstanding his proven record as a war leader, he and his Conservative Party were repudiated by the country before the peace had been made, and while he was still conducting at Berlin negotiations of fateful importance for the future of Britain and the world. A bitter campaign on domestic issues followed dissolution of Parliament in June 1945 and at the ensuing general election Labour won a decisive victory. Although retaining his seat in the House of Commons, Churchill vacated the premiership in favor of Clement Richard Attlee (q.v.), and in a valedictory expressed his profound gratitude to the British people for the kindness "shown toward their servant."

CIO. See LABOR CONDITIONS IN THE UNITED STATES.

CITRUS FRUITS. October 1 estimates for the 1945 production of these fruits, which include oranges, tangerines, grapefruit, lemons and limes, were omitted by the United States Department of Agriculture, due to the fact that in California, the largest producer of oranges, and the only listed producer of lemons, the picking season usually extends from October 1 to December 31 "of the following year."

Oranges.—The 1944 orange crop of the United States totaled 112,933,000 boxes (including 3,900,000 boxes of tangerines). The 1943 crop, (3,600,000 boxes of tangerines included), was 106,651,000 boxes, and the 1934–43 average crop was 76,505,000 boxes (2,780,000 boxes of tangerines included). All tangerines are credited to Florida. Of the 1944 orange crop California produced 60,323,000 boxes, and Florida produced 42,800,000 boxes. Texas produced 4,400,000 boxes, Arizona, 1,150,000 boxes, and Louisiana, 360,000 boxes. Florida's 1945 crop (October 1 estimate) was placed at 50,000,000 boxes.

Grapefruit.—Florida and Texas are the leading grapefruit producing states. Florida's 1945 crop was estimated at 32,000,000 boxes and Texas's at 24,000,000 boxes. However, in 1944, out of a total crop for the country of 51,855,000 boxes, Florida and Texas each was credited with 22,300,000. Other producing states were Arizona and California. The 1943 grapefruit crop totaled 56,090,000 boxes and the 1934–43 average crop was 37,000,000 boxes.

Lemons and Limes.—California is the only state listed as a lemon producer, and Florida holds a similar position with respect to limes. In 1944 California produced 12,300,000 boxes of lemons; 11,050,000 boxes in 1943; and an average of 11,339,000 boxes in 1934–43. Florida's 1945 lime

crop was estimated at 200,000 boxes as compared with its 1944 crop of 250,000 boxes and its 1934–43 average crop of 93,000 boxes.

CIVIL AERONAUTICS ADMINISTRATION (CAA). During 1945 the Civil Aeronautics Administration concluded its world-wide activities in support of the armed forces, and intensified its efforts to foster a vast expansion in civil aviation. A goal of 400,000 civil aircraft in operation by 1955 was set, and a four-point program for realizing this objective was outlined: (1) Expansion and modernization of the nation's airports; (2) Sponsorship of research to improve personal aircraft; (3) Resumption of civilian pilot training and intensified aid to aviation education; (4) Simplification of regulations governing personal flying.

Looking toward improvement of the airport system, the CAA worked closely with state, local and private interests in formulating the National Airport Plan which was submitted to Congress. Under its wartime program, the Office of Airports completed 31 landing areas at locations approved by the army and navy.

Work was advanced on the modernization of Federal Airways, the system of radio-equipped routes which make possible flying during conditions of restricted visibility. Fifty seven very high frequency radio ranges, which are expected to speed up and simplify navigation by eliminating static and interference, were assigned for survey and construction, with engineering and preparation of plans and specifications approximately 70 per cent completed. The CAA Experimental Station at Indianapolis began work on the adaptation of radar to civil aviation, using equipment supplied by the armed forces.

Thirty instrument landing systems were completed at fields used by the army and three at civilian airports. Procurement, surveying or construction of instrument landing systems was under way at another 15 military and 47 civilian fields.

War activities by Federal Airways included establishment for the army of air traffic control centers at Guam, Kwajalein and Johnston Islands and for the navy at Bermuda; training of many traffic controllers for the armed services of the United States and allied nations; and expansion of the CAA's worldwide radio network by completion of transoceanic stations at Balboa, Canal Zone, San Juan, Puerto Rico, and Miami.

Office of Safety Regulation also played a dual role. It tested many cargo and transport aircraft built for the armed forces; handled allocations of lower grades of gasoline to distributors; and enforced wartime security restrictions on civil flying. At the same time it attempted to cope with a spreading interest in civilian flying, giving more than 190,000 examinations for original airman certificates compared with 118,000 in the previous year. Among the steps taken to simplify the requirements for private flyers was issuance of a condensed medical examination form for use by any registered physician.

The program of technical assistance to state and local education authorities concerned with introducing or improving aeronautic courses in the schools was continued, with emphasis on a redirection toward peace time conditions. The Office of Aviation Training also supervised aviation courses for young men from the American republics at 4 centers in this country and assisted the governments of Mexico and Brazil in continuing training activities.

CAA personnel also were active upon the international scene as participants in the Provisional International Civil Aviation Organization.

Research projects undertaken during the year included a study of the relationship between visual standards for civilian pilots and flight performance.

To meet growing demands for information about civil aviation, the Office of Aviation Information issued numerous special publications, including a statistical handbook, a draft *Spanish-English Glossary*, a report on surplus aircraft sales and other booklets.

T. P. WRIGHT,
Administrator, Civil Aeronautics Administration.

CIVIL SERVICE, United States. On August 16, 1945, immediately following the end of hostilities in the war with Japan, the United States Civil Service Commission, anticipating widespread reductions in force in the war agencies of the federal government during the first few months of peace, put into operation a program designed to provide maximum opportunities for employment, during those months, to (a) returning veterans and (b) displaced federal employees. The commission closed all its examinations and announced that, until further notice, applications for entry into the service would be accepted only from persons with veteran preference who had the right to have examinations reopened. Applications for re-employment are accepted from federal employees affected by reductions in force.

The effect of this action was to place a ban on the receipt of applications for employment from the general public—a ban which was to be lifted only in instances where the number of veteran-preference applicants and the number of persons involved in reductions in force were not sufficient to fill vacancies. The action was taken because the commission believed it would be wasteful to continue to receive applications for limited appointments from persons who were outside the federal service, and were nonveterans, if the needs of the service could be met by returning veterans and by persons already in the federal service.

Appointments continue to be "war service" appointments, as they have been since March 16, 1942. They may not exceed the duration of the war, as legally fixed, plus 6 months. The practice of holding examinations leading to permanent appointments will not be resumed until demobilization of the armed forces is virtually complete. This will give veterans an opportunity to compete for permanent appointments.

Applications for the reopening of examinations are accepted at any time from (1) honorably discharged veterans (men and women) who have service-connected disabilities, or are receiving compensation, disability-retirement benefits or pension by reason of public laws; (2) wives of veterans with service-connected disabilities who are themselves unable to qualify for appointment; and (3) widows of war veterans. Ten points are added to their earned ratings in examinations; in most instances, the names of those who qualify are placed at the top of the appropriate list of eligibles. With certain time limitations, applications are also accepted from Second World War veterans who are not disabled. Five points are added to their ratings.

Representatives of agencies in need of new personnel may interview employees in other agencies who are involved in reductions in force. Those with the necessary qualifications may be

transferred to another agency. Employees who are involved in reductions in force but are not hired by another agency through the interview method can, by qualifying in an examination, have their names placed on the appropriate list of eligibles.

At the end of July 1945, two weeks before the end of hostilities, 2,900,000 paid civilian employees were serving in the federal executive civil service in the continental United States. One month later, the number had decreased more than 100,000. The greatest decreases were in the War Department (61,000) and in the Navy Department (37,000).

In reductions in force, the order of separation is determined on the basis of tenure of employment, veteran preference, length of service, and efficiency ratings.

The Federal Employees Pay Act of 1945, effective July 1, increased the basic pay rates of all positions subject to the Classification Act of 1923, as amended. The average increase was about 16 per cent. The largest groups of employees who were not affected by these increases were (1) employees whose pay is fixed and adjusted from time to time by wage boards, and (2) Postal Service employees. The pay of Postal Service employees was increased by Public Law 134, 79th Congress, effective July 1, 1945.

During the first 8 months of 1945, more than 134,000 veteran placements, including placements of wives of disabled veterans and widows of veterans, were made in the federal service. Veteran placements between Jan. 1, 1943 and Aug. 31, 1945 totaled 413,265. Between July 1, 1944 and July 31, 1945, 23,406 veterans were restored to positions in the federal service in accordance with the Selective Training and Service Act.

Early in the Second World War, the Civil Service Commission adopted a policy of making a greater number of federal positions available to persons with severe physical impairments. Physical capacities of impaired workers were "matched" with the physical demands of thousands of different kinds of jobs. Between Oct. 1, 1942 and Aug. 31, 1945, 65,190 physically impaired persons were placed in federal jobs. The number placed in August 1945 was 1,961; 739 were veterans.

HARRY B. MITCHELL,
President, U. S. Civil Service Commission.

CLARK, Kenneth Sherman, American composer and music editor: b. Pittsburgh, Pa., May 25, 1882; d. Princeton, N.J., Jan. 22, 1945. A pioneer in the field of community singing and long active in music publishing circles, Mr. Clark is probably best known to the public for having written four of the most popular traditional Princeton songs. During his senior year at Princeton, he completed the words and music to *The Princeton Jungle Song;* in 1910, he wrote *Going Back to Nassau Hall;* while *Princeton, That's All* and *Princeton, Forward March* followed a few years later. See also under MUSIC—*Necrology.*

CLARK, Mark Wayne, United States Army officer: b. Madison Barracks, N.Y., May 1, 1896. General Clark directed Allied operations for the long and costly Italian campaign (Sept. 9, 1943–May 2, 1945), first as head of the Allied Fifth Army, finally as commander in chief of the Allied Fifteenth Army Group. A graduate of the United States Military Academy (1917), he served with the 11th Infantry in France in the First World War, and was later stationed with the Army of Occupation at Coblenz. In 1925, he completed courses at the Infantry School; in 1935, at the Command and General Staff School; and 1937, at the Army War College. He was a member of the General Staff Corps, in 1935–36. and again in 1937–40 and March–June 1942. In July 1942, he was given command of United States ground forces in the European theater, and in the fall of that year, led a successful secret mission to secure information in North Africa preparatory to the Allied invasion of that country. For this latter achievement, he was awarded the Distinguished Service Medal and promoted lieutenant general. For the final phases of the North African campaign (November 1942–May 1943), General Clark was deputy commander in chief of American forces, and in September 1943, led troops of the Allied Fifth Army invading the Italian mainland. He joined forces with Gen. (now Field Marshal) Sir Bernard L. Montgomery's British Eighth Army on September 17 for the drive up the Italian boot. General Clark directed the opening of a new front in Italy on Jan. 22, 1944, with a surprise Fifth Army landing on the Italian west coast, south of Rome. He was named commander in chief of the Allied Fifteenth Army Group in that theater in late November 1944, replacing Field Marshal Sir Harold R. L. G. Alexander. On April 9, 1945, as the battle for Germany neared an end, General Clark shattered the four months' lull on his "forgotten front." In a 22-day drive his Fifteenth Army Group routed 25 German divisions—the British, Eighth sweeping up the Adriatic coast and the Allied Fifth down from the Apennines to crush all German resistance in Italy on the banks of the Po River. Unconditional surrender terms were signed by the Nazis on April 29 at Allied headquarters at Caserta. General Clark was promoted full general (temporary) in March 1945; at that time, he held the permanent rank of brigadier general in the Regular Army.

CLARK, Thomas Campbell, United States Cabinet official: b. Dallas, Texas, Sept. 23, 1899. On May 23, 1945, Mr. Clark was appointed attorney general of the United States to succeed Francis Biddle. He has been with the Department of Justice since 1937, when he gave up private law practice to become special assistant to the attorney general. He was chief of the west coast offices of the department's Antitrust Division, 1940–42, and head of the War Funds Unit and first assistant to the assistant attorney general, Antitrust Division, 1942–43. In March of the latter year, he supplanted Thurman Arnold as division head, and has been outspoken in the matter of business practices he considered monopolistic. In August 1943, he transferred from the antitrust to the criminal division. Son of a well-known Texas lawyer who died several years ago, Mr. Clark was educated at Virginia Military Institute, 1917–18, and at the University of Texas, where he took his A.B. degree in 1921, his LL.B. in 1922. Admitted to the Texas bar, he practiced law in Dallas with his father and brother until 1927. From 1927–32, he was civil district attorney for Dallas County, a position he resigned to enter private practice.

CLAY. According to the United States Bureau of Mines, domestic clay, including fuller's earth, sold or used by producers in 1944 totaled 17,295,328 short tons valued at $36,855,275, as compared with 20,818,191 tons valued at $39,704,978 in 1943. Approximately 40 per cent of

the 1944 output was consumed in heavy clay products, 31 per cent in refractories, 16 per cent in portland cement, 3 per cent in paper, and 2 per cent in pottery. Some clays that have specialized industrial uses fared very well in 1944, while others that serve the construction field were at a very low ebb. Fire clay, including stoneware clay, sold or used by producers in 1944 amounted to 6,344,383 short tons valued at $14,167,118, as compared with 7,798,233 tons valued at $17,218,446 in 1943, a decline of 19 per cent. Sales of ball clay in 1944 totaled 155,667 short tons valued at $1,376,096, as compared with 147,785 tons valued at $1,271,474 in 1943, an increase of 5 per cent. Consumption of kaolin or china clay amounted to 873,056 tons; of bentonite, 546,768 tons; and of fuller's earth, 294,737 tons. Imports of clay of all kinds in 1944 totaled 66,507 short tons valued at $661,129 as compared with 71,517 tons in 1943 valued at $730,693. Exports of clay in the two years were: 181,199 tons valued at $2,068,562 in 1944; 163,568 tons valued at $1,814,289 in 1943. Most of the exports were of fire clay and fuller's earth.

CLENDENING, Logan, American physician and writer: b. Kansas City, Mo., May 25, 1884; committed suicide, Jan. 30-31, 1945. Dr. Clendening's syndicated column, "Diet and Health," appeared in more than 400 newspapers, with a total circulation of many millions, and his books on popular medical subjects sold in large numbers.

Although ill-health forced Dr. Clendening to leave the University of Michigan after three years, he received his M.D. degree in 1907 at the University of Kansas, and began practice in Kansas City, Mo., in 1909. He had served on the faculty of the University of Kansas in various capacities since 1910, and was professor of clinical medicine there since 1928. He served in the First World War as a major in the Medical Corps, and for a time was chief of the Medical Service Base Hospital at Fort Sam Houston. Among his better known books are *The Human Body* (1927); *The Care and Feeding of Adults* (1931); *Behind the Doctor* (1933); *The Balanced Diet* (1936); *A Handbook to "Pickwick Papers"* (1936); and *Source Book of Medical History* (1942).

COAL. With the war over, the reconversion of the coal industry to a peacetime economy is one of the most important problems facing the former belligerents. So far as the United States is concerned, the purely physical part of the reconversion boils down to the simple matter of consigning a shipment to an automobile plant instead of a munitions plant. But in war devastated Europe the situation is radically different. Lack of labor, of tools, and of an adequate food supply, superimposed on the physical, mental and moral degeneration that has inevitably followed six years of war, has left the coal industry in most of the occupied countries in even worse condition than existed during German occupation. In Germany itself the situation is no better. Discounting the normal fuel consumption of these countries on a prewar basis, the fuel supply in most of Europe during the winter of 1945–46, fell far short of the bare minimum necessary to stave off freezing and starvation, through lack of ability to process foodstuffs. Practically every country overrun by the war experienced a winter of privation, hardship and suffering from lack of fuel that was worse than at any time during the war.

United States.—The 1943 total of 650,820,689 short tons of coal produced in the United States increased to 683,700,000 tons in 1944, with anthracite and bituminous each contributing in about the same proportion to the increase of 5.1 per cent. Production during the first nine months of 1945 amounted to 40,834,000 tons of anthracite and 437,838,000 tons of bituminous coal, totaling 478,672,000 tons. This total is 8 per cent below that of the corresponding period of 1944; the production rate throughout 1945 was consistently below that of 1944. The breakdown of the total output of the war years is shown in the following table:

Year	Anthracite	Bituminous	Total	Change
1939	51,487,377	394,855,325	446,342,072	+14.4%
1940	51,484,640	460,771,500	512,256,140	+14.8
1941	56,368,267	514,149,245	570,517,512	+11.3
1942	60,327,729	582,692,937	643,020,666	+12.7
1943	60,643,620	590,177,069	650,820,689	+1.2
1944	63,701,363	620,000,000	683,700,000	+5.1
1945	52,894,000[1]	554,253,000[1]	607,147,000	−8.0

[1] Total through December 15.

In November 1944 the weekly production rate for bituminous coal fell below that for the corresponding weeks of the previous year, and except for half a dozen scattered weeks, remained lower throughout the first three quarters of 1945. In anthracite there was a similar lag, aggravated by an almost complete stoppage during most of May 1945. As a result production during the first three quarters of the year was 8 per cent less than in the same period of 1944 for bituminous, and 16 per cent less for anthracite.

Sporadic strikes began to break out in the bituminous industry late in September 1945, and by mid-October production had dropped by one half. Then, when there seemed little if any hope of an early agreement, on October 18 the strike was suddenly and dramatically called off "in the public interest," with orders for the strikers to return to work the following Monday. Production losses incident to the strike were close to 20,000,000 tons.

Stocks of coal in storage have declined by half since the end of 1942, and at the end of April 1945 were down to a 30 days' supply. During the summer months this figure was increased to 38 days. The country was in a poor position to face a prolonged strike even were other conditions normal. With the reconversion program just started, with insistent calls for coal for devastated Europe, with our own home bins only partly filled, due to rationing regulations, and with industrial stocks at a low level, the situation was critical—a fact which doubtless had been viewed as a pronounced asset by the labor leaders responsible for the strikes.

Under the pressure of war demand coal production in the United States showed a steady expansion from 1939 to 1944, the total for 1944 being more than a half greater than that for 1939. This heavy increase was made in the face of steadily decreasing labor force, from which more than 10 per cent had been drafted for military service. Furthermore, the labor force was kept from still worse shrinkage only by the recruiting of new, unskilled replacements, and by the return to work of many older men who, though competent, were less vigorous than the younger men whom they replaced. Under these conditions the war record of the coal industry is one that can be regarded with justifiable pride by all who contributed to it, and is marred only by the repeated strikes, in violation of the no-strike pledge which labor had voluntarily given.

Austria.—Fuel supply conditions in Austria in 1945 were serious. Prewar consumption was 7,000,000 tons a year, only half of which was home production. The 1945 output was only one-quarter normal, and imports were scarce. Hungary was Austria's only source of supply, but substantial additions were hoped for from Poland later.

Belgium.—Production was gradually improving, but was still far below the prewar level of 2½ million tons monthly. In October, output had increased to 60,000 tons daily.

Canada.—Coal production in Canada in 1944 totaled 17,010,117 short tons, as compared with 17,859,057 tons in 1943. Of the 1944 total, 11,767,523 tons was bituminous, 728,364 tons subbituminous, and 4,514,230 tons lignite. The heaviest reductions were in bituminous in Nova Scotia and lignite in Saskatchewan. Demand increased slightly. Exports declined by almost 100,000 tons, while imports increased slightly less; net imports rose from 27,742,553 tons in 1943 to 27,916,685 tons in 1944. The average number employed increased from 24,880 in 1943 to 25,203 in 1944.

During the first seven months of 1945 Canadian production was 9,547,995 tons, against 9,555,919 tons in the same period of 1944. Increases of 10.5 per cent in Alberta, 13 per cent in Saskatchewan, and 16 per cent in New Brunswick were more than offset by losses of 9 per cent in Nova Scotia and 18 per cent in British Columbia. Imports for the same period dropped materially being only 12,078,233 tons against 14,775,702 tons in 1944. Exports continued to decline, dropping more than in the full year of 1944.

Czechoslovakia.—Coal production in August 1945 was reported to be only 450,000 tons against monthly requirements of 800,000 tons. Labor was short and an additional 15,000 more miners were needed.

France.—By a decree dated Dec. 13, 1944, the administration of coal mines in the departments of Nord and Pas-de-Calais was taken over by the state, and a collective administration was set up. It was apparently intended later to incorporate into the scheme all of the other important coal producing areas of France.

Production was far below the level of the country's needs. Output at the end of September 1945 was 757,000 tons weekly, or at a rate of 3,100,000 tons monthly, against minimum requirements of 3,500,000 tons.

Netherlands.—As compared with a prewar high of 45,000 tons daily, output in July 1945 was down to 16,000 tons. Minimum requirements are 26,000 tons. Even in the first half of 1944, under German occupation, production was 34,000 tons daily.

Poland.—The resumption of normal operation was apparently making fair progress in Poland in 1945. No production figures have been seen, but during the second quarter of 1945, 76 mines were reported to have resumed operation. Under a 1945 agreement, Polish coal will be supplied for the Rumanian railway system.

Great Britain.—British coal production in 1944 totaled 192,745,700 long tons, as compared with 198,919,700 tons in 1943. Underground mine output declined, but open pit mines showed a good increase. In 1944 the underground total was 184,098,400 tons, and open pit 8,647,300 tons. Mines in operation dropped from 1,782 in 1943 to 1,720 in 1944, while wage earners increased from 707,800 to 710,200. Output per man-year dropped from 274.8 tons to 259.2 tons, and average costs increased from 28s. 2d. to 33s. 3d. Home consumption was estimated at 185,400,000 tons, leaving little surplus.

Excluding absenteeism, the production loss attributable to various causes was: authorized holidays 8,493,600 tons, disputes 3,001,700 tons, accidents, breakdowns and repairs 1,603,800 tons, transportation difficulties 587,900 tons, other reasons 435,500 tons, total 14,122,500 tons. Losses from absenteeism were not reported, but of the total 41 per cent was voluntary and 59 per cent involuntary. See also MINES, U.S. BUREAU OF.

G. A. ROUSH,
Editor, The Mineral Industry.

COAST AND GEODETIC SURVEY, United States. The beginning of the fiscal year saw the tidal work of the bureau and of the main ship hydrographic parties concentrated in the western Pacific. In anticipation of landings on the China coast and the main Japanese islands, tidal predictions had been furnished for 650 different beaches. In addition, predictions were made concerning the tidal currents to be expected offshore. This essential information for successful landings was obtained by use of the Tide Predicting Machine, a mechanical calculator upon which were set those factors needed to reproduce the curve delineating the rise and fall of the sea for each hour through the next twelve months. These factors had been secured through research of the bureau's files which contained the actual or predicted tides for previous years, before censorship had cut off the flow of such data from these foreign shores in an exchange for scientific use.

Five main ships of the survey fleet continued hydrographic surveys in the Western Aleutian Islands and in the waters extending from Adak to Attu. New charts issued early in 1945 were from previous years' surveys and the current season saw the extension of these surveys into further uncharted waters. The accomplishment of this work has been a vital need to the patrol ships of the navy and the deep draft vessels of the army and merchant marine carrying supplies and personnel to those essential military bases in the Aleutian Islands.

An expedition was sent to Point Barrow where surveys were carried out except when ice conditions prevented operations. The work of this group furnished the data for the first Coast and Geodetic Survey marine charts of the Arctic coast of Alaska.

Observations of the direction and intensity of the earth's magnetic field were continued at five Coast and Geodetic Survey observatories located in the United States, Alaska, Puerto Rico and Hawaii. Changes in variation and in other magnetic elements were noted to provide information for use with magnetic equipment for geophysical prospecting and for compass surveys. True azimuth marks and the magnetic north directions were established at 70 airports in 30 states to permit precise compass adjustments for airplanes.

Isogonic charts over world air routes from best available information were produced for use by army and navy fliers. Five major seismographs were operated by the Coast and Geodetic Survey and assistance was given eleven universities and seven private stations in the operation of seismic stations throughout the country. In the program of engineering seismology, 60 strong motion instruments were maintained in western states and studies were made of vibrations of buildings and foundations.

During the past year, geodetic control surveys were extended into the Columbia and the Missouri River valleys for the proposed investigations for flood control, power and reclamation development by the Army Engineers and the Bureau of Reclamation. Additional area coverage and breakdown of the main transcontinental arcs of triangulation were made in particular localities at the request of several cities and state engineers, and for federal topographic mapping.

More friendly relations with the other American republics were developed through an exchange of experts in surveying and mapping. Through arrangements with the State Department 30 trained engineers from 14 American republics were instructed in field methods and equipment in the United States.

Because of the great movement of troopships and of the merchant marine, there was maintained throughout the year the large demand of the war years for marine charts of our coastal waters. The accuracy of these charts was maintained by constant revisions. Over four million copies of 837 individual coastal charts were produced and issued. Printing of the aeronautical charts of the United States, 134 in number, continued during the year, but at a lessening rate after the defeat of Japan. There were compiled and printed for the Army Air Forces about six million charts of foreign areas.

The following is a list of new volumes relating to the functions of the Coast and Geodetic Survey which have been issued this year: *Practical Air Navigation; General Theory of Equivalent Projections; United States Earthquakes; Coast Pilots of United States Waters; Tables of Prediction of Tides for 4,200 World Ports; State Co-ordinate Systems; Tidal Bench Marks for Florida Gulf Coast;* and *Surface Water Temperatures of the Pacific Coast.*

LEO OTIS COLBERT,
Rear Admiral; Director, United States Coast and Geodetic Survey.

COAST GUARD, United States. Charged since its creation in 1790 with the peacetime functions of safety of life at sea and of a maritime police, the United States Coast Guard at war, operating as a service under the navy since November 1941, continued to perform these functions in their application to the prosecution of the war, and simultaneously played an important role in naval patrols, troop transportation, and in landing operations of the armed forces in the offensives of the European and Pacific theaters of war.

Coast Guard Goes to War.—From the very outset of war, coastguardsmen were in action against the enemy—aboard rugged combat cutters which dueled Nazi submarines in the North Atlantic and on invasion craft which carried troops and supplies ashore during almost every amphibious operation. As Allied smashing offensives penetrated deep into the enemies' territory during 1943 and 1944, the danger of hostile landings on our coasts lessened, permitting certain relaxations in antisubmarine and shore patrol home-front security assignments, thus enabling the Coast Guard to meet increasing demands from the Joint Chiefs of Staff for additional thousands of men for duty in combat areas across both oceans. Serving on LST's, LCI's, troop transports, and other ships of the invasion and auxiliary fleets, coastguardsmen were active in Africa, Sicily, Italy, Normandy, and Southern France, helping to establish and back the fighting fronts.

The release of increasing numbers of coastguardsmen from beach patrol, port security, and other defense duties for overseas assignments, and the assignment of SPARS, the Women's Reserve of the Coast Guard, to duty in Hawaii and Alaska, resulted in sending overseas more than half the 172,671 (as of April 3, 1945) officers, enlisted men, and SPARS of the Coast Guard.

When the fighting focus turned to the Pacific, Coast Guard-manned transports began helping with the gigantic task of moving troops from one side of the globe to the other; the fleet of 83-foot patrol boats, known as the Coast Guard Rescue Flotilla and famous for rescuing over a thousand lives while on duty in the English Channel on D-Day and the weeks that followed, was transferred to the Pacific to serve with the invasion forces there where Coast Guard landing craft began preparing for new amphibious invasions. In addition to these ships, the Coast Guard was scheduled to man 582 navy and army combat vessels at the completion of a program mapped out soon after hostilities in Europe ceased.

Aside from manning these hundreds of ships, coastguardsmen were also assigned to strategic communications installations at far Pacific bases. Operating secret electronics equipment, specially trained coastguardsmen were charged with maintaining the stations urgently required for navigational assistance to ships and aircraft.

By directive from the Joint Chiefs of Staff and the secretary of navy, the Coast Guard commandant was named head of a newly created Air-Sea Rescue Agency, delegated to develop and disseminate safety techniques for the rescue of men at sea. To this end, the Coast Guard's air arm, operating from nine coastal stations, was greatly expanded, while Coast Guard rescue communications networks and high frequency radio installations similarly were enlarged to meet new needs. Meantime, in Greenland and Labrador, where there is some of the most hazardous flying in the world, Coast Guard airmen operated patrol squadrons for the double purpose of antisubmarine patrol and the plotting of ice movements along North Atlantic convoy routes. Foreseeing in its peculiar flight qualities wide possibilities for rescue operations, the Coast Guard is conducting exhaustive experimentation with helicopters.

Peacetime Functions.—But through all this, through whatever new assignments and duties it may have received, the Coast Guard remained responsible for the execution of peacetime functions and for the discharge of added tasks made necessary by the war. While many port security activities were eliminated with the lessening danger of sabotage, the Coast Guard continued to guard harbor and waterfront facilities at the large ports of embarkation, through which passed all troops and supplies moving overseas. This work was done largely by thousands of civilian volunteers who enlisted in the Coast Guard Temporary Reserve to serve a minimum of 12 hours each week without pay on waterfront security watches. As of April 21, 1945, more than 53,680 civilians were serving in the Temporary Reserve. As danger of enemy operations along our coasts diminished, the Coast Guard began placing many of the Temporary Reservists on inactive duty. It also restored to use as many aids to navigation as possible. The Coast Guard is responsible for the operation and maintenance of some 34,500 aids to navigation (including lightships, lighthouses, radio beacons, buoys, etc.) on all rivers and coasts of the United States and the waters of

outlying territories and possessions, including Alaska, Hawaii, Puerto Rico, and newly acquired islands and bases.

With our greatest merchant marine fleet in history committed to the transport of troops and supplies across all the thousands of miles to fighting fronts, the Coast Guard counted as one of its most important responsibilities the inspection and enforcement of safety requirements on these vessels. Experienced Coast Guard officers and men tested and inspected lifesaving and fire-fighting devices, looked after the efficiency and welfare of merchant marine personnel, and governed the proper manning of all merchant marine vessels. Through the Merchant Marine Council, the Coast Guard assumed the initiative in promoting closer understanding and co-operation among the varied maritime interests. At these meetings, seamen and operators met together to serve the best interests of our merchant fleet.

At more important ports and harbors overseas, the Coast Guard detailed Merchant Marine Hearing Units for the immediate adjudication of all matters involving a breach of regulations or of discipline at sea.

Always a dramatic activity of the Coast Guard's ceaseless task in maintaining safety of life at sea, are the ice breaking operations in the Great Lakes, along the Atlantic Coast, and up into Greenland and other Arctic areas, where sometimes it has been necessary for Coast Guard ships to poke their bows into the Arctic ice pack. It was one of the Coast Guard's specially constructed ice breakers which destroyed a German meteorological station on the northeastern coast of Greenland, foiling a German ambition for securing vital weather forecasts. For the benefit of the United States Weather Service, and to provide important information for our overseas air operations, the Coast Guard maintained 24 vessels on weather patrol duties.

Celebrating its 155th anniversary on Aug. 4, 1945, the Coast Guard looks back on a long record of outstanding service through peace and war, under both the Treasury Department and the navy; but even more than this, men and women of the Coast Guard are determined, no matter where their service might carry them, that they should keep faith with the Coast Guard's pointed motto—*Semper Paratus* (Always Ready).

R. R. WAESCHE,
Commandant, United States Coast Guard.

COAXIAL CABLE. See TELEPHONE PROGRESS—*Section 5.*

COCHINCHINA. See FRENCH INDO-CHINA.

COCOS ISLANDS. See BRITISH MALAYA.

COFFEE. The Bureau of Customs announced on Oct. 3, 1945, preliminary figures showing the quantities of coffee authorized for entry for consumption under the quotas for the 12 months commencing Oct. 1, 1944, provided for in the Inter-American Coffee Agreement, proclaimed by the President on April 15, 1941, as follows:

Country of Production Signatory Countries:	Quota Quantity (Pounds)[1]
Brazil	2,353,628,932
Colombia	796,794,513
Costa Rica	50,615,676
Cuba	20,246,297
Dominican Republic	30,369,379
Ecuador	37,961,757
El Salvador	151,847,028
Guatemala	135,396,920
Haiti	69,596,621
Honduras	5,061,541
Mexico	120,212,296
Nicaragua	49,350,324
Peru	6,326,893
Venezuela	106,292,893
Nonsignatory Countries	89,842,785
Total	4,023,553,955

[1] Quotas as of June 1, 1945, determined by action of the Inter-American Coffee Board on May 29, 1945.

COINS AND COINAGE. See MINT ESTABLISHMENT, UNITED STATES.

COKE. In 1944 the coke industry with increased by-product coking capacity surpassed all earlier production records, supplying coke and by-products vitally needed for war and other essential industries. According to the United States Bureau of Mines, the combined production of by-product and beehive coke was 74,037,817 net tons in 1944—67,064,795 by-product, and 6,973,022 beehive—an increase of 3 per cent over 1943. This ultimate increase of 3 per cent in the record output was registered from a 5 per cent increase in production of by-product coke and a proportionate decrease of 12 per cent in the output of beehive coke, resulting generally from the expansion of by-product coke-making facilities. Consumption of by-product and beehive coke in 1944 increased 2 per cent over the previous maximum of 1943 and amounted to 72,999,670 net tons, of which by-product coke ovens supplied 91 per cent. The total value of coke, produced and sold in the United States in 1944 amounted to $736,153,019; by-product, $686,910,035; beehive, $49,242,984.

COLLECTIVE BARGAINING. See LABOR CONDITIONS IN THE UNITED STATES.

COLLEGE ENROLLMENTS. See EDUCATION, REVIEW OF.

COLLEGE OF SURGEONS, American. See AMERICAN COLLEGE OF SURGEONS.

COLLEGES AND UNIVERSITIES. Beginning on page 185 of this volume is a list of institutions of higher learning in the United States and Canada. All information concerning these institutions was supplied by the head or secretary of each. See also EDUCATION, REVIEW OF.

COLOMBIA. A republic in northwestern South America, bounded on the west by the Pacific Ocean and Panama, on the south by Ecuador and Peru, on the east by Brazil and Venezuela, and on the north by the Caribbean Sea. It is the only South American state with both Atlantic and Pacific coastlines. Colombia is traversed by three chains of the Andes; much of the western and southern portions lie in the Orinoco and Amazon drainage basins. The area is 439,828 square miles, making Colombia the fourth largest country in South America. Population was estimated Jan. 1, 1945, at 10,082,000; most of the population lives on the north coast and in the Andean highlands; Antioquia and Cundinamarca are the most populous departments. The principal cities are Bogotá, the capital (est. pop., 434,240), Medellín (215,830), Barranquilla (202,760), Cali (133,140), Manizales (108,260), Cartagena (100,360), Buenaventura (30,000), Ibagué (61,447), Cúcuta (57,248), and Pasto (49,644). Colombia was visited by Columbus, for whom it was named, on his fourth voyage in 1502. In the 18th century it formed an important part of the viceroyalty of New Granada. Under the leadership of Simón Bolívar Colombia won its independence from Spain in 1819 and for ten years thereafter continued united with

COLLEGES AND UNIVERSITIES IN THE UNITED STATES AND CANADA

(a) 1943–44 figures; (b) this figure includes the following institutions located in New York City: Barnard College, Teachers College, College of Pharmacy, New York Post-Graduate Medical School, New York School of Social Work; (c) this figure includes Barnard College, Teachers College, College of Pharmacy, New York Post-Graduate Medical School and New York School of Social Work; (d) this figure includes Barnard College, Teachers College, College of Pharmacy, New York Post-Graduate Medical School and New York School of Social Work; (e) 1945–46 figures; (f) acting president; (g) subsidized by the Columbus Y.M.C.A.; (h) all departments of the corporation; (i) state financed; (j) includes government documents and periodicals; (k) 8 full-time, 10 part-time; (l) 62 full-time, 54 part-time; (m) 36 full-time, 14 part-time; (n) 26 full-time, 40 part-time; (o) housed in the $2,500,000 Hershey Community Building; (p) 146 boarders, 30 day students; (q) contributed services; (r) includes evening college and extension; (s) 341 plus 74 in extension; (t) affiliated with Calvin Coolidge College; (u) woman's division of Virginia Polytechnic Institute; (v) liberal arts 225, nurse students 117; (w) total assets—value of grounds, endowment and income; (x) $125,000 from the state, $300,000 from the Bureau of Naval Personnel; (y) president emeritus; (z) 5 full-time, 5 part-time; (aa) June 30, 1944; (bb) from endowment; (cc) state appropriation; (dd) 43 full-time, 7 part-time; (ee) ½ of biennial budget; (ff) in high school building; (gg) 16 full-time, 6 part-time; (hh) appropriation by state $66,745; (ii) appropriation by state $920,000; (jj) acres of land; (kk) 1941–42 figures—college temporarily closed due to war; (ll) $10,800 scholarships; $65,000 contributed services—anually; (mm) 1 full-time, 6 part-time; (nn) 198 undergraduates, 329 graduates; (oo) 1899 as Mount Ida School for Girls; reorganized 1939 on junior college level; (pp) founded 1867, opened as Centenary Collegiate Institute. Junior College inaugurated 1929; (qq) 1895 private, 1939 state; (rr) all figures are for 1940–41, a normal year; (ss) college library 39,000; School of Technology library 7,500; (tt) also $65,975 from other sources; (uu) contributed services equivalent to interest on $500,000; (vv) 31 some part-time, 24 full-time; (ww) trust fund; (xx) 18 normal school, 10 training school; (yy) 48 full-time, 106 part-time; (zz) in addition 5 per cent of $40,000,000 Duke endowment; (aaa) includes Rabbi Isaac Elchanan Theological Seminary, founded 1897.

Name of Institution	Location	Year Founded	Chief Executive	No. Teachers	No. Students 1944–45			Value of Plant	Endowment	Income 1944–45	Volumes in Library
					Total	Men	Women				
Abilene Christian College	Abilene, Texas	1906	Don Heath Morris	40	555	188	367	$747,023	$.....	$269,589	17,403
Acadia University	Wolfville, N.S., Can.	1838	Frederic W. Patterson	45	530	283	247	1,741,048	1,010,830	376,573	86,500
Adams State College of Colorado	Alamosa, Colo.	1921	Ira Richardson	24	....	....	....	900,000	.....	115,739	21,500
Adelphi College	Garden City, N.Y.	1896	Paul Dawson Eddy	65	894	....	894	2,330,000	47,675	450,000	38,650
Adrian College	Adrian, Mich.	1845	Samuel J. Harrison	21	162	45	117	446,000	294,000	113,000	12,000
Agnes Scott College	Decatur, Ga.	1889	James R. McCain	66	542	....	542	2,227,416	2,856,006	462,267	44,000
Akron, University of	Akron, Ohio	1870	Hezzleton E. Simmons	102	1,502	414	1,088	1,906,473	134,633	1,088,168	67,569
Alabama, University of	Tuscaloosa, Ala.	1820	Raymond R. Paty	275	2,958	920	2,038	8,430,021	5,150,000	2,007,000	290,000
Alabama College, The State College for Women	Montevallo, Ala.	1896	Arthur F. Harman	72	668	....	668	2,500,000	591,122	431,650	50,000
Alabama Polytechnic Institute	Auburn, Ala.	1872	Luther N. Duncan	185	2,265	1,163	1,102	4,166,574	24,058	2,663,075	100,004
Alabama State Teachers College	Florence, Ala.	1872	James A. Keller	33	440	52	388	1,994,005	.....	200,000	41,500
Alabama State Teachers College	Jacksonville, Ala.	1892	Houston Cole	49	790	105	685	1,500,000	.....	300,000	27,000
Alabama State Teachers College	Livingston, Ala.	1883	William W. Hill	25	78	14	64	.....	.....	87,500	23,313
Alaska, University of	College, Alaska	1917	Charles E. Bunnell	22	76	41	35	1,000,000	.....	229,700	20,000
Albany State College	Albany, Ga.	1904	Aaron Brown	30	226	16	206	401,901	.....	123,133	3,050
Albert College	Belleville, Ont., Can.	1857	Rev. Bert B. Howard	16	138	90	48	850,000	17,500	80,000	7,000
Alberta, University of	Edmonton, Alberta, Can.	1906	Robert Newton	214	1,561	940	621	5,063,000	688,000	.....	80,200
Albertus Magnus College	New Haven, Conn.	1925	Sister Mary Samuel	37	165	....	165	392,604	(uu)5,678	105,416	20,000
Albion State Normal School	Albion, Idaho	1893	Raymond H. Snyder	18	135	25	110	850,000	21,000	110,000	16,500
Albright College	Reading, Pa.	1856	Harry V. Masters	32	245	90	155	1,500,000	700,000	215,005	25,000
Alcorn A & M College	Alcorn, Miss.	1871	William H. Pipes	60	191	20	171	800,000	.....	200,000	15,000
Alderson-Broaddus College	Philippi, W.Va.	1871	John W. Elliott	22	130	45	85	500,000	45,000	64,783	8,200
Alfred University	Alfred, N.Y.	1836	Dr. Jack E. Walters	67	347	90	257	1,503,510	1,055,787	510,012	64,323
All Saints' Episcopal College	Vicksburg, Miss.	1908	The Rev. W. G. Christian	23	93	....	93	280,747	188,100	97,376	4,000
Allegheny College	Meadville, Pa.	1815	John R. Schultz	48	629	143	486	2,480,108	1,736,021	600,000	.....
Alliance Junior College	Cambridge Springs, Pa.	1912	John J. Kolasa	9	40	40	....	931,018	2,500,000	100,372	10,000
Alma College	St. Thomas, Ont., Can.	1877	Rev. P. S. Dobson	30	250	....	250	300,000	15,000	110,000	3,000
Alma College	Alma, Mich.	1886	Roy William Hamilton	30	116	21	95	(w)700,000	.....	.....	51,000
Alma White College	Zapephath, N.J.	1921	Arthur Kent White	21	15	7	8	.....	.....	.....	10,000
Altus Junior College	Altus, Okla.	1926	A. G. Steele	11	48	6	42	(ff)	.....	2,276	2,208
Alverno Teachers College	Milwaukee, Wis.	1890	Mother M. Corona	19	486	....	486	.....	.....	.....	20,777
Amarillo College	Amarillo, Texas	1929	John F. Mead	20	498	120	378	320,000	.....	64,600	1,154
American International College, The	Springfield, Mass.	1885	Chester S. McGown	29	1,178	438	740	.....	.....	.....	.....
American University, The	Washington, D.C.	1893	Paul F. Douglass	125	2,998	1,050	1,948	3,305,295	897,098	623,000	112,000
Amherst College	Amherst, Mass.	1821	Stanley King	67	143	143	....	10,269,201	19,168,414	1,210,536	250,080
Anderson College and Theological Seminary	Anderson, Ind.	1917	John A. Morrison	25	602	211	391	264,221	35,035	215,000	13,000
Anderson College	Anderson, S.C.	1911	Annie D. Denmark	22	350	....	350	303,988	3,770	94,045	7,130

Name of Institution	Location	Year Founded	Chief Executive	No. Teachers	No. Students 1944–45			Value of Plant	Endowment	Income 1944–45	Volumes in Library
					Total	Men	Women				
Andover Newton Theological School	Newton Centre, Mass.	1807	Everett C. Herrick	20	124	109	15	$551,148	$2,555,587	$170,354	5,500
Andrew College	Cuthbert, Ga.	1854	Stephen Chester Olliff	14	112	....	112	220,840	140,600	59,639	4,500
Antelope Valley Junior College	Lancaster, Calif.	1929	David J. Roach	7	25	3	22	250,000	.....	110,000	9,000
Antioch College	Yellow Springs, Ohio	1853	Algo D. Henderson	46	602	93	509	1,629,000	2,235,000	780,446	69,466
Aquinas College	Grand Rapids, Mich.	1924	Rev. Arthur F. Bukowski	27	116	15	101	[a]237,472	.....	41,137	14,000
Arizona, University of	Tucson, Ariz.	1885	Alfred Atkinson	182	2,239	662	1,577	6,330,496	21,138	1,633,931	180,000
Arizona State Teachers College	Flagstaff, Ariz.	1899	Tom O. Bellwood	34	161	38	123	1,500,000	.....	237,197	30,000
Arizona State Teachers College	Tempe, Ariz.	1885	Grady Gammage	68	738	154	584	2,066,000	.....	499,495	47,775
Arkansas, University of	Fayetteville, Ark.	1871	Arthur McC. Harding	175	2,068	981	1,087	6,000,000	[i]	4,300,000	205,105
Arkansas Agricultural and Mechanical College	Monticello, Ark.	1909	Marvin Bankston	35	200	40	160	1,500,000	.....	[x]425,000	16,000
Arkansas City Junior College	Arkansas City, Kans.	1922	C. E. St. John	16	130	43	87	[ff]	.....	25,000	5,800
Arkansas College	Batesville, Ark.	1872	Rev. John D. Spragins	14	120	32	88	371,110	57,291	46,286	14,023
Arkansas Polytechnic College	Russellville, Ark.	1909	Joseph W. Hull	30	164	80	84	1,000,000	.....	100,000	15,000
Arkansas State Agricultural and Mechanical College	Magnolia, Ark.	1909	Earle E. Graham[f]	20	170	80	90	875,937	.....	172,867	15,000
Arkansas State Teachers College	Conway, Ark.	1907	Nolen M. Irby	40	425	75	350	2,000,000	.....	375,000	26,000
Armstrong College	Berkeley, Calif.	1918	J. Evan Armstrong	20	450	....	....	290,000	.....	.....	10,000
Armstrong Junior College	Savannah, Ga.	1935	Foreman McConnell Hawes	10	200	55	145	800,000	20,364	54,660	6,500
Asbury College	Wilmore, Ky.	1890	Zachary T. Johnson, Sr.	26	550	160	390	1,080,800	715,204	380,098	28,720
Ashland College	Ashland, Ohio	1878	Edward Glenn Mason	30	243	85	158	572,436	400,000	117,388	22,000
Ashland Junior College	Ashland, Ky.	1938	Dr. Arville Wheeler	11	125	33	92	110,000	.....	27,000	6,000
Assumption College	Worcester, Mass.	1904	Rev. Rodolphe L. Martel	10	54	54	...	500,000	.....	15,000	24,000
Athens College	Athens, Ala.	1822	Eugene R. Naylor	24	224	23	201	500,000	400,000	167,000	14,000
Atlanta University	Atlanta, Ga.	1865	Rufus E. Clement	42	285	30	255	1,965,395	4,036,968	268,360	76,971
Atlantic Christian College	Wilson, N.C.	1902	H. S. Hilley	22	261	36	225	466,787	331,324	84,063	15,644
Atlantic Union College	South Lancaster, Mass.	1882	G. Eric Jones	40	493	196	297	580,000	30,500	400,000	30,000
Augsburg College and Theological Seminary	Minneapolis, Minn.	1869	Bernhard M. Christensen	24	229	95	134	350,000	72,248	111,607	21,180
Augustana College	Sioux Falls, S.Dak.	1860	Lawrence M. Stavig	25	327	71	256	487,178	464,861	125,806	20,000
Augustana College and Theological Seminary	Rock Island, Ill.	1860	Dr. Conrad Bergendoff	68	708	342	366	1,690,136	1,451,184	313,916	90,255
Aurora College	Aurora, Ill.	1893	Theodore P. Stephens	25	128	32	96	267,964	73,723	78,239	29,000
Austin Peay State College	Clarkville, Tenn.	1927	Philander P. Claxton	30	348	43	305	450,000	.....	162,199	18,000
Austin Presbyterian Theological Seminary, The	Austin, Texas	1899	David Leander Stitt	7	26	26	....	300,000	400,000	37,854	19,000
Averett College	Danville, Va.	1859	Dr. Curtis V. Bishop	25	338	17	321	532,150	80,000	128,800	8,000
Bacone College	Bacone, Okla.	1880	Earl L. Riley	18	115	63	52	1,000,000	321,000	70,000	12,000
Baker University	Baldwin, Kans.	1858	Nelson P. Horn	[vv]55	333	75	228	637,000	1,276,000	137,000	68,000
Bakersfield Junior College	Bakersfield, Calif.	1913	Grace V. Bird	34	367	114	253	4,040,538	.....	1,812,000	11,351
Baldwin-Wallace College	Berea, Ohio	1845	Louis C. Wright	68	510	112	398	2,100,000	1,920,000	690,000	43,910
Ball State Teachers College	Muncie, Ind.	1918	John R. Emens	90	1,073	178	895	4,635,872	[i]	697,786	98,332
Baltimore, University of	Baltimore, Md.	1925	Dr. Theodore H. Wilson	73	2,740	1,521	1,219	.....	.....	.....	.....
Barber-Scotia College	Concord, N.C.	1867	L. S. Cozart	16	145	....	145	350,600	490,000	60,000	7,400
Bard College	Annandale-on-Hudson, N.Y.	1860	Charles H. Gray	29	140	43	97	336,659	269,739	337,000	60,000
Barnard College	New York, N.Y.	1889	Nicholas Murray Butler[y]	119	1,100	....	1,100	4,300,000	200,000	.....	63,499
Bates College	Lewiston, Me.	1864	Charles F. Phillips	39	338	53	285	[a]1,138,976	[a]2,175,167	[a]379,360	[a]80,000
Baylor University	Waco, Texas	1845	Dr. Patrick M. Neff	88	1,417	375	1,042	4,107,010	2,909,899	429,439	.....
Beckley College	Beckley, W.Va.	1933	Grover C. Hedrick	16	364	....	....	.....	.....	.....	7,000
Belhaven College	Jackson, Miss.	1894	Guy T. Gillespie	29	310	....	310	750,000	480,000	147,000	17,000
Beloit College	Beloit, Wis.	1846	Carey Croneis	48	369	48	321	1,418,297	2,235,218	[a]561,969	133,755
Bennett College	Greensboro, N.C.	1873	David D. Jones	35	420	....	420	1,398,112	804,000	272,454	19,075
Bennington College	Bennington, Vt.	1925	Lewis W. Jones	44	299	....	299	1,430,000	100,093	542,804	25,000
Berea College	Berea, Ky.	1855	Francis S. Hutchins	98	763	130	633	5,105,071	11,123,639	587,517	100,000

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Berkeley Divinity School	New Haven, Conn.	1854	Rev. Lawrence Rose	[z]10	14	14	....	$371,903	$450,775	$37,665	35,000
Bessie Tift College	Forsyth, Ga.	1847	Dr. C. Lamar McGinty	23	266	....	266	[aa]481,537	350,000	101,914	1,450
Bethany College	Bethany, W.Va.	1840	Wilbur H. Cramblet	35	317	56	261	1,252,148	2,408,418	752,626	40,700
Bethany College	Lindsborg, Kans.	1881	Emory Lindquist	28	197	34	163	421,691	459,379	133,904	23,391
Bethany-Peniel College	Bethany, Okla.	1899	Oscar J. Finch	31	567	161	406	333,958	.....	190,385	15,600
Bethel College	North Newton, Kans.	1887	Edmund G. Kaufman	26	179	49	130	500,000	500,000	150,000	25,000
Bethel College	McKenzie, Tenn.	1842	Roy N. Baker	13	71	34	37	250,000	422,508	32,583	11,000
Bethune-Cookman College	Daytona Beach, Fla.	1872	James A. Colston	26	312	53	259	428,616	135,273	170,975	13,624
Biltmore College	Asheville, N.C.	1927	William H. Morgan	16	79	31	48	.....	.....	.....	.....
Birmingham-Southern College	Birmingham, Ala.	1856	George R. Stuart, Jr.	46	684	245	439	2,247,000	576,110	148,832	60,000
Bishop College	Marshall, Texas	1880	Joseph J. Rhoads	24	410	92	318	450,000	13,000	201,000	16,000
Bishop's University	Lennoxville, Quebec, Can.	1845	The Lord Archbishop	18	135	99	36	300,857	1,259,221	86,645	25,000
Black Hills Teachers College	Spearfish, S. Dak.	1883	Russell E. Jonas	30	100	10	90	500,000	.....	140,000	20,000
Blackburn College	Carlinville, Ill.	1857	William M. Hudson	17	174	17	157	600,000	1,523,000	[bb]51,347	18,463
Bloomfield College and Seminary	Bloomfield, N.J.	1868	Joseph Hunter	16	74	68	6	200,000	635,000	45,000	7,600
Blue Mountain College	Blue Mountain, Miss.	1873	Lawrence T. Lowrey	29	338	....	338	543,000	491,000	136,000	17,300
Bluefield College	Bluefield, Va.	1921	Edwin C. Wade	17	75	25	50	500,000	105,000	26,000	6,000
Bluefield State College	Bluefield, W.Va.	1895	Henry L. Dickason	24	330	32	298	490,000	.....	94,000	14,000
Bluffton College	Bluffton, Ohio	1899	Lloyd L. Ramseyer	20	85	15	70	317,755	208,085	80,000	16,000
Bob Jones College	Cleveland, Tenn.	1927	Robert R. (Bob) Jones	75	1,200	450	750	1,228,769	145,544	554,858	18,000
Boise Junior College	Boise, Idaho	1932	Conan E. Mathews[f]	22	231	54	177	534,038	.....	101,000	10,000
Boston, Teachers College of the City of	Boston, Mass.	1852	William H. J. Kennedy	24	248	1	247	.....	.....	.....	.....
Boston College	Chestnut Hill, Mass.	1863	Very Rev. Wm. J. Murphy	155	1,592	981	611	.....	.....	.....	197,634
Boston University	Boston, Mass.	1839	Daniel L. Marsh	673	10,321	2,832	7,489	6,655,810	5,336,745	2,631,563	242,000
Bowdoin College	Brunswick, Me.	1794	Kenneth C. M. Sills	50	360	360	....	3,781,000	8,844,995	691,074	202,000
Bowling Green State University	Bowling Green, Ohio	1910	Frank J. Prout	95	1,109	110	999	3,500,000	.....	620,000	70,000
Bradford Junior College	Bradford, Mass.	1803	Dorothy M. Bell	33	260	....	260	1,320,175	115,675	340,000	15,000
Bradley Polytechnic Institute	Peoria, Ill.	1896	Dr. Frederic R. Hamilton	62	1,547	657	890	1,296,307	2,409,968	403,781	61,291
Brandon College Inc.	Brandon, Manitoba, Can.	1899	John R. C. Evans	21	322	102	220	214,621	500,000	63,332	11,200
Branksome Hall	Toronto, Ont., Can.	1903	Edith M. Read	40	500	....	500	.....	.....	.....	.....
Brawley Junior College	Brawley, Calif.	1924	Percy E. Palmer	...	....	....	....	.....	.....	.....	5,000
Brenau College	Gainesville, Ga.	1878	Dr. Josiah Crudup	34	448	....	448	1,200,000	500,000	336,000	20,800
Brewton-Parker Junior College	Mount Vernon, Ga.	1904	Robert L. Robinson	10	210	82	128	125,000	25,000	35,488	4,500
Briar Cliff College	Sioux City, Iowa	1930	Sister Jean Marie	25	245	....	245	343,751	56,950	95,772	13,500
Briarcliff Junior College	Briarcliff Manor, N.Y.	1907	Clara M. Tead	35	188	....	188	.....	.....	[a]215,062	6,779
Bridgewater College	Bridgewater, Va.	1880	Paul H. Bowman	24	190	66	124	530,653	528,471	134,365	15,000
Brigham Young University	Provo, Utah	1875	Howard S. McDonald	120	1,508	389	1,119	1,803,476	284,256	488,890	138,750
British Columbia, University of	Vancouver, B.C., Can.	1915	Dr. N. A. M. MacKenzie	114	3,058	1,935	1,123	4,577,700	138,537	968,993	140,000
Brooklyn, Polytechnic Institute of	Brooklyn, N.Y.	1854	Harry S. Rogers	160	2,646	2,498	148	1,985,000	1,513,480	1,178,700	23,000
Brooklyn College	Brooklyn, N.Y.	1930	Harry D. Gideonse	500	8,916	2,393	6,523	7,655,565	15,768	2,267,086	[j]151,800
Brown University	Providence, R.I.	1764	Henry M. Wriston	182	2,306	714	1,592	7,713,503	11,920,744	2,741,580	645,463
Bryn Mawr College	Bryn Mawr, Pa.	1880	Katharine Elizabeth McBride	86	640	1	639	5,178,885	7,391,483	1,012,140	190,500
Bucknell University	Lewisburg, Pa.	1846	Herbert L. Spencer	96	894	202	692	3,183,000	1,300,000	1,200,000	100,000
Buena Vista College	Storm Lake, Iowa	1891	Henry Olson	24	165	21	144	305,000	150,000	75,000	15,300
Buffalo, University of	Buffalo, N.Y.	1846	Samuel P. Capen	406	3,446	1,425	2,021	7,104,575	6,763,319	.....	201,456
Burlington Junior College	Burlington, Iowa	1920	Robert White, Jr.	18	104	44	60	775,000	.....	.....	12,200
Butler University	Indianapolis, Ind.	1848	M. O. Ross	64	1,097	337	760	3,486,000	3,000,000	703,000	70,000
California, University of	Berkeley and Los Angeles, Calif.	1868	Robert G. Sproul	2,021	18,750	4,986	13,764	60,362,366	34,066,120	13,421,848	1,256,000
California Institute of Technology	Pasadena, Calif.	1891	Robert A. Millikan	162	284	284	....	12,000,000	13,000,000	[a]26,590,000	61,760
Calvin College	Grand Rapids, Mich.	1876	Henry Schultze	25	420	78	137	582,395	195,276	171,281	30,000
Cambridge Junior College	Cambridge, Mass.	1934	Irving Trefethen Richards	14	63	10	53	40,000	.....	20,812	2,500
Campbellsville College	Campbellsville, Ky.	1907	Warren F. Jones	13	140	32	108	155,000	8,000	.....	8,000
Camrose Lutheran College	Camrose, Alberta, Can.	1910	Chester A. Ronning	7	118	45	73	50,000	.....	33,122	1,200

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Canal Zone Junior College	Balboa Heights, C.Z.	1933	Roger C. Hackett	6	77	41	36	$300,000	$.....	$36,000	7,000
Canisius College	Buffalo, N.Y.	1870	Very Rev. T. J. Coughlin	55	1,050	300	750	1,500,000	150,000	.....	40,000
Capital University	Columbus, Ohio	1850	Otto Mees	70	661	234	427	1,331,500	634,412	423,077	42,500
Carleton College	Northfield, Minn.	1866	Laurence M. Gould	64	668	68	600	4,153,338	3,492,638	919,541	140,043
Carnegie Institute of Technology	Pittsburgh, Pa.	1900	Robert E. Doherty	216	1,429	677	752	8,200,000	18,000,000	2,286,500	44,302
Carroll College	Helena, Mont.	1910	Very Rev. Emmet J. Riley	21	80	9	71	800,000	500,000	.....	17,000
Carroll College	Waukesha, Wis.	1846	Gerrit T. Vander Lugt	36	267	58	209	1,109,958	947,534	.....	30,000
Carson-Newman College	Jefferson City, Tenn.	1851	James Thomas Warren	26	263	65	198	646,203	611,749	35,776	24,610
Carthage College	Carthage, Ill.	1870	Erland N. P. Nelson	25	182	63	119	500,000	820,000	120,000	32,000
Case School of Applied Science	Cleveland, Ohio	1880	William E. Wickenden	89	474	469	5	3,163,000	5,355,132	1,200,000	36,500
Catawba College	Salisbury, N.C.	1851	Alvin R. Keppel	27	297	95	202	714,000	396,000	190,000	22,000
Catholic University of America	Washington, D.C.	1887	Rt. Rev. Patrick J. McCormick	218	2,128	1,150	978	[a]4,049,264	3,644,287	874,580	355,000
Cazenovia Junior College	Cazenovia, N.Y.	1824	Isabel D. Phisterer	21	86	....	86	271,012	110,208	74,222	5,356
Cedar Crest College	Allentown, Pa.	1867	Dale H. Moore	36	330	....	330	1,098,695	122,669	231,189	25,000
Cedarville College	Cedarville, Ohio	1887	Ira D. Vayhinger	10	....	....	....	200,000	200,000	.....	6,000
Centenary College	Shreveport, La.	1825	Joe J. Mickle	36	803	178	625	1,247,766	466,123	328,178	26,900
Centenary Junior College	Hackettstown, N.J. [pp]	1867	Hurst R. Anderson	21	221	....	221	.....	.....	.....	9,055
Central College	Conway, Ark.	1892	Edwin S. Preston	15	93	....	93	350,000	.....	51,000	5,000
Central College	Pella, Iowa	1853	Irwin J. Lubbers	30	196	57	139	595,000	367,000	155,000	20,000
Central College	McPherson, Kans.	1914	Mendal B. Miller	13	130	58	72	150,047	20,764	63,655	7,283
Central College	Fayette, Mo.	1855	Harry S. DeVore	35	298	54	244	1,639,375	1,107,763	353,964	41,000
Central Junior College	El Centro, Calif.	1922	Eugene W. Waterman	15	65	24	41	[ff]	.....	.....	.....
Central Michigan College of Education	Mount Pleasant, Mich.	1892	Charles L. Anspach	115	1,228	212	1,016	2,304,327	.....	460,000	50,875
Central Missouri State Teachers College	Warrensburg, Mo.	1870	George W. Diemer	59	535	59	476	2,000,000	.....	715,425	97,277
Central Normal College	Danville, Ind.	1876	P. R. Hightower	16	151	74	77	205,000	589	21,424	12,000
Central State College	Edmond, Okla.	1890	Roscoe R. Robinson	65	440	53	387	1,369,231	.....	.....	31,827
Central State Teachers College	Stevens Point, Wis.	1894	William C. Hansen	50	217	32	185	1,024,920	.....	[ee]207,490	41,418
Central Washington College of Education	Ellensburg, Wash.	1891	Robert E. McConnell	50	366	18	348	1,666,574	.....	446,728	42,000
Centralia Junior College	Centralia, Wash.	1925	Margaret Corbet	8	87	26	61	[ff]	.....	14,500	[ff]
Centre College	Danville, Ky.	1819	Robert J. McMullen	27	158	30	128	1,050,696	1,908,697	82,279	39,000
Chaffey College	Ontario, Calif.	1883	Gardiner W. Spring	35	413	101	312	1,379,154	.....	465,863	37,000
Chanute Junior College	Chanute, Kans.	1936	W. W. Bass	20	98	31	67	200,000	.....	22,838	5,016
Chapman College	Los Angeles, Calif.	1860	George N. Reeves	23	123	27	96	1,400,000	140,000	109,000	18,000
Charleston, College of	Charleston, S.C.	1770	George D. Grice	20	216	67	149	1,530,800	526,000	104,811	31,597
Chattanooga, University of	Chattanooga, Tenn.	1886	David A. Lockmiller	47	427	99	328	1,875,000	800,736	226,765	105,551
Chestnut Hill College	Philadelphia, Pa.	1871	Sister Maria Kostka	45	376	....	376	2,400,000	[q]	180,000	30,000
Chevy Chase Junior College	Washington, D.C.	1903	Carrie Sutherlin	20	108	....	108	.....	.....	.....	4,000
Chevney Training School for Teachers	Chevney, Pa.	1837	Leslie P. Hill	14	140	11	129	1,196,273	.....	294,248	15,000
Chicago, University of	Chicago, Ill.	1890	Robert M. Hutchins	832	7,890	2,849	5,041	43,875,675	69,820,141	28,067,127	1,498,889
Chicago Lutheran Theological Seminary	Maywood, Ill.	1891	Charles B. Foelsch	9	38	37	1	650,000	490,000	56,000	21,500
Chicago Teachers College	Chicago, Ill.	1869	John A. Bartky	46	735	28	707	1,000,000	.....	279,000	67,000
Chico State College	Chico, Calif.	1887	Aymer J. Hamilton	38	395	103	292	1,250,000	.....	215,526	33,000
Christian College	Columbia, Mo.	1851	James C. Miller	38	364	....	364	1,000,000	100,000	346,750	15,000
Cincinnati, University of	Cincinnati, Ohio	1819	Raymond Walters	604	3,536	1,322	2,214	11,031,593	10,500,000	3,475,488	580,838
Citadel, The	Charleston, S.C.	1842	Gen. Charles P. Summerall	36	483	483	....	5,194,933	.....	599,600	35,851
Citrus Junior College	Azusa, Calif.	1915	Wesley V. Smith	30	65	5	60	200,000	.....	.....	6,500
Claremont Colleges	Claremont, Calif.	1925	Elijah W. Lyon	110	317	129	188	1,311,624	758,462	127,255	56,000
Clark College	Atlanta, Ga.	1869	James P. Brawley	28	626	134	492	828,175	676,456	227,516	15,000
Clark University	Worcester, Mass.	1887	Wallace W. Atwood	34	322	110	212	2,028,462	5,000,000	.....	174,000
Clarke College	Dubuque, Iowa	1843	Sister Mary Ambrose	48	342	....	342	.....	.....	.....	23,500
Clarkson College of Technology	Potsdam, N.Y.	1895	John A. Ross, Jr.	25	159	159	....	761,000	1,268,000	[a]285,000	10,000
Clemson Agricultural College, The	Clemson, S.C.	1889	Robert F. Poole	111	745	745	....	6,594,480	276,983	3,706,094	67,563
Clifton Junior College	Clifton, Texas	1896	Carl Tyssen	6	45	....	....	125,000	15,000	12,000	6,000

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Coe College	Cedar Rapids, Iowa	1880	C. Harue Geiger[f]	54	478	82	396	$1,296,252	$1,800,135	$306,790	52,150
Coffeyville Junior College	Coffeyville, Kans.	1923	Karl M. Wilson	14	203	86	117	48,000	.....	38,470	6,000
Cogswell Polytechnical College	San Francisco, Calif.	1887	Robert W. Dodd	13	....	....	....	250,050	1,798,356	68,170	.....
Coker College	Hartsville, S.C.	1908	Donald C. Agnew	32	350	....	350	613,868	679,030	[a]186,410	22,000
Colby College	Waterville, Me.	1813	Julius S. Bixler	43	449	103	346	3,810,084	3,067,763	401,886	113,000
Colby Junior College for Women	New London, N.H.	1837	Herbert Leslie Sawyer	43	380	....	380	1,000,000	350,000	400,000	25,000
Colgate University	Hamilton, N.Y.	1819	Everett N. Case	96	107	107	....	4,050,286	5,608,186	140,000	140,744
Colorado, University of	Boulder, Colo.	1876	Robert L. Stearns	331	3,968	863	3,105	7,850,000	823,000	1,691,000	560,000
Colorado College	Colorado Springs, Colo.	1874	Charlie B. Hershey[f]	61	1,050	141	909	2,145,000	2,453,000	364,000	132,350
Colorado School of Mines	Golden, Colo.	1874	Melville F. Coolbaugh	35	161	161	....	2,000,000	125,000	350,000	50,000
Colorado State College of Agriculture and Mechanic Arts	Fort Collins, Colo.	1870	Roy M. Green	108	736	336	400	5,047,397	550,000	655,000	113,200
Colorado State College of Education	Greeley, Colo.	1889	George W. Frasier	75	1,854	210	1,644	3,339,202	.....	[a]1,032,697	109,788
Colorado Woman's College	Denver, Colo.	1888	James E. Huchingson	43	405	....	405	1,400,000	216,000	350,000	10,000
Columbia University	New York, N.Y.	1754	F. D. Fackenthal[f]	[b]2,330	[b]27,104	....	....	[c]57,942,896	[d]88,793,710	[d]162,431,968	2,000,000
Compton Junior College	Compton, Calif.	1927	Dr. O. Scott Thompson	76	1,075	413	662	2,904,740	.....	148,860	25,000
Conception Seminary	Conception, Mo.	1873	Rt. Rev. S. Schappler	23	150	150	....	.....	.....	.....	29,000
Concord College	Athens, W.Va.	1872	Joseph F. Marsh	32	724	....	....	1,250,000	[i]	139,000	20,000
Concordia College	Moorhead, Minn.	1891	John N. Brown	45	428	66	362	717,633	563,105	[a]253,403	30,083
Concordia College	Saint Paul, Minn.	1893	Martin Graebner	10	188	188	....	750,000	8,000	66,600	19,500
Concordia College	Milwaukee, Wis.	1881	Leroy C. Rincker	14	66	66	....	900,000	20,000	109,312	25,000
Concordia Collegiate Institute	Bronxville, N.Y.	1881	Albert E. Meyer[f]	12	84	25	59	850,000	60,000	110,000	15,000
Concordia Teachers College	River Forest, Ill.	1864	Arthur Klinck	20	190	97	93	1,035,000	.....	186,120	20,000
Concordia Teachers College	Seward, Nebr.	1894	Alfred O. Fuerbringer	19	160	62	98	600,000	.....	66,065	10,200
Concordia Theological Seminary	Springfield, Ill.	1846	Dr. Richard C. Neitzel[f]	9	150	150	....	323,590	.....	28,875	11,000
Concordia Theological Seminary	St. Louis, Mo.	1839	Louis J. Sieck	25	549	544	5	2,233,381	71,095	169,800	35,000
Connecticut, Teachers College of	New Britain, Conn.	1849	Dr. Herbert D. Welte	40	324	42	282	1,130,120	.....	.....	26,000
Connecticut, University of	Storrs, Conn.	1881	Albert N. Jorgensen	211	2,751	1,260	1,491	11,724,539	307,294	3,094,063	95,000
Connecticut College	New London, Conn.	1911	Katharine Blunt[f]	100	750	....	750	5,027,006	2,128,097	999,340	[a]103,937
Converse College	Spartanburg, S.C.	1889	Edward M. Gwathmey	45	411	....	411	1,158,601	601,188	328,363	33,700
Cooper Union for the Advancement of Science and Art	New York, N.Y.	1859	Gano Dunn	126	966	523	443	1,477,446	8,114,632	1,043,687	108,000
Copiah-Lincoln Junior College	Wesson, Miss.	1914	Willie H. Smith[f]	25	251	73	178	470,101	.....	56,700	7,235
Cornell College	Mount Vernon, Iowa	1853	Russell D. Cole	49	510	55	455	1,114,449	2,418,561	235,975	60,000
Cornell University	Ithaca, N.Y.	1865	Edmund E. Day	1,127	4,783	1,983	2,800	30,567,177	34,903,861	15,747,518	1,187,734
Corpus Christi Junior College	Corpus Christi, Texas	1935	Marvin P. Baker	12	587	235	352	249,563	.....	104,174	4,900
Cottey Junior College for Women	Nevada, Mo.	1884	Marjorie Mitchell	20	151	....	151	494,209	51,452	75,278	8,173
Creighton University	Omaha, Nebr.	1878	Thomas S. Bowdern	229	1,071	549	522	3,015,374	4,000,000	.....	140,257
Creston Junior College	Creston, Iowa	1926	Charles E. Hill	19	33	4	29	[ff]345,000	.....	15,000	5,500
Crosby-Ironton Junior College	Crosby, Minn.	1937	John P. von Grueningen	6	....	....	....	.....	.....	.....	2,500
Crozer Theological Seminary	Chester, Pa.	1867	Edwin Ewart Aubrey	9	57	57	....	586,800	1,877,000	125,233	70,000
Culver-Stockton College	Canton, Mo.	1853	Walker H. McDonald	26	170	32	138	518,026	838,750	116,491	30,000
Cumberland University	Lebanon, Tenn.	1842	Laban L. Rice	16	300	200	100	375,000	.....	.....	15,000
Dakota Wesleyan University	Mitchell, S. Dak.	1885	Joseph H. Edge	22	166	33	133	580,000	600,000	146,000	30,000
Dalhousie University	Halifax, N.S., Can.	1820	Alexander E. Kerr	147	705	508	197	2,505,040	3,683,021	459,141	69,800
Dallas Theological Seminary and Graduate School of Theology	Dallas, Texas	1924	Lewis S. Chafer	10	111	111	....	300,000	.....	.....	21,000
Dana College	Blair, Nebr.	1884	R. E. Morton	15	85	26	59	180,000	170,000	66,185	12,000
Danbury State Teachers College	Danbury, Conn.	1903	Ralph C. Jenkins	40	157	....	157	1,000,000	.....	152,792	25,000
Dartmouth College	Hanover, N.H.	1769	John S. Dickey	220	344	344	....	7,620,000	22,200,000	2,260,000	600,000
David Lipscomb College	Nashville, Tenn.	1891	Batsell Baxter	30	429	133	296	543,725	260,000	153,816	11,219
Davidson College	Davidson, N.C.	1836	John R. Cunningham	45	218	207	11	2,440,000	3,500,000	357,460	50,000
Davis and Elkins College	Elkins, W.Va.	1903	Raymond B. Purdum	16	194	49	145	820,000	208,000	61,800	19,100
Dayton, University of	Dayton, Ohio	1849	Rev. George J. Renneker	105	758	368	390	2,099,107	[q]	356,650	40,000
De La Salle College	Manila, P.I.	1911	Brother Anthony	32	756	756	....	900,000	.....	36,000	.....

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Decatur Baptist College	Decatur, Texas	1891	Dr. J. L. Ward	7	94	38	56	$200,555	$86,300	$24,500	4,335
Defiance College	Defiance, Ohio	1885	Harold D. Hopkins	21	180	30	150	287,540	185,091	48,358	27,000
Delaware, University of	Newark, Del.	1833	Wilbur O. Sypherd	92	376	104	272	5,761,807	754,600	2,567,651	117,000
Delta State Teachers College	Cleveland, Miss.	1924	William M. Kethley	30	204	16	188	1,103,636	(i)	185,105	25,000
Denison University	Granville, Ohio	1831	Kenneth I. Brown	69	675	78	597	3,493,000	3,368,000	481,000	105,000
Denver, University of	Denver, Colo.	1864	Dr. Ben M. Cherrington	293	3,820	1,302	2,518	1,914,378	2,696,068	787,178	180,000
De Paul University	Chicago, Ill.	1898	Very Rev. C. J. O'Malley	230	6,016	1,551	4,465	2,248,000	(q)2,000,000	850,000	78,376
De Pauw University	Greencastle, Ind.	1837	Clyde E. Wildman	105	1,068	125	943	3,573,853	6,165,541	918,277	105,740
Detroit, University of	Detroit, Mich.	1877	William J. Millor	182	2,146	1,052	1,094	10,583,000	1,640,000	740,000	123,125
Detroit Institute of Technology	Detroit, Mich.	1891	Louis M. McKnight	111	1,623	1,375	248	1,000,000	.....	140,000	12,000
Dickinson College	Carlisle, Pa.	1773	Cornelius W. Prettyman	29	253	80	173	1,956,309	2,250,000	250,000	72,851
Dillard University	New Orleans, La.	1930	Albert W. Dent	31	287	40	247	1,080,061	1,502,108	216,261	30,000
Dixie Junior College	St. George, Utah	1911	Glenn E. Snow	24	117	42	75	275,000	.....	67,350	10,000
Doane College	Crete, Nebr.	1872	George B. Drake	30	131	15	116	436,359	1,138,151	82,400	28,250
Dodge City Junior College	Dodge City, Kans.	1935	William H. Crawford	8	69	14	55	500,000	.....	33,824	4,200
Dr. Martin Luther College	New Ulm, Minn.	1884	Carl L. Schweppe	15	248	118	130	520,000	.....	25,000	10,000
Drake University	Des Moines, Iowa	1881	Henry G. Harmon	75	939	323	616	1,340,340	1,440,478	582,151	111,511
Drew University	Madison, N.J.	1867	Arlo A. Brown	59	484	327	57	2,425,105	6,458,884	548,505	194,000
Drexel Institute of Technology	Philadelphia, Pa.	1891	Robert C. Disque(f)	125	1,377	590	787	4,738,293	2,866,973	770,061	85,501
Dropsie College for Hebrew and Cognate Learning	Philadelphia, Pa.	1905	Abraham A. Neuman	8	48	41	7	508,584	1,310,778	58,886	52,515
Drury College	Springfield, Mo.	1873	James F. Findlay	30	510	127	383	687,029	972,760	.....	61,788
Dubuque, University of	Dubuque, Iowa	1852	Dale D. Welch	34	297	65	232	721,729	730,533	360,170	26,696
Duchesne College	Omaha, Nebr.	1882	Mother Helen Casey	16	153	....	153	.....	.....	.....	18,000
Duke University	Durham, N.C.	1838	Robert L. Flowers	511	2,484	1,341	1,143	31,234,828	47,001,342	4,371,969	722,613
Duluth Junior College	Duluth, Minn.	1927	Raymond D. Chadwick	18	108	58	50	1,500,000	.....	36,000	8,000
Duluth State Teachers College	Duluth, Minn.	1895	Dr. Herbert Sorenson	(dd)50	367	50	317	818,900	21,000	235,000	27,252
Dunbarton College of Holy Cross	Washington, D.C.	1935	Sister Mary Frederick	30	163	....	163	807,489	(q)38,500	55,091	17,000
Duquesne University	Pittsburgh, Pa.	1878	Very Rev. Raymond V. Kirk	171	1,443	375	1,068	1,915,348	2,000,000	505,602	46,000
D'Youville College	Buffalo, N.Y.	1908	Sister Grace	27	324	....	324	753,920	.....	144,764	28,800
Earlham College	Richmond, Ind.	1847	William Cullen Dennis	31	317	96	221	817,517	1,401,212	231,520	69,000
East Carolina Teachers College	Greenville, N.C.	1907	Howard J. McGinnis	75	918	57	861	3,100,000	.....	465,000	51,000
East Central Junior College	Decatur, Miss.	1914	L. O. Todd	17	255	64	191	361,000	.....	60,000	5,600
East Central State College	Ada, Okla.	1909	Adolph Linscheid	56	394	79	315	1,351,000	.....	170,207	44,812
East Tennessee State College	Johnson City, Tenn.	1911	Charles C. Sherrod	48	421	78	343	1,300,000	.....	225,000	35,000
East Texas Baptist College	Marshall, Texas	1914	Harvey D. Bruce	20	269	80	189	452,734	75,000	60,000	9,500
East Texas State Teachers College	Commerce, Texas	1889	Samuel H. Whitley	100	625	225	400	1,250,000	.....	550,000	100,000
Eastern Baptist Theological Seminary	Philadelphia, Pa.	1925	Gordon Palmer	26	261	229	32	877,188	2,580,558	.....	20,000
Eastern Illinois State Teachers College	Charleston, Ill.	1895	Robert G. Buzzard	74	331	76	255	2,024,906	.....	(ee)499,040	61,400
Eastern Kentucky State Teachers College	Richmond, Ky.	1906	William F. O'Donnell	80	660	77	583	3,059,038	.....	478,000	70,000
Eastern Mennonite School	Harrisonburg, Va.	1917	John L. Stauffer	20	91	29	62	310,148	2,261	136,734	7,500
Eastern Montana State Normal School	Billings, Mont.	1927	L. B. McMullen	...	12	6	6	375,000	.....	91,250	15,000
Eastern Nazarene College	Wollaston, Mass.	1918	Samuel Young	22	335	105	230	400,000	500,000	200,000	17,000
Eastern New Mexico College	Portales, N.Mex.	1927	Floyd D. Golden	43	276	60	216	379,450	16,578	208,177	17,508
Eastern Oregon College of Education	La Grande, Oreg.	1929	Roben J. Maaske	28	315	42	273	569,556	1,000	94,534	24,502
Eastern State Normal School	Madison, S. Dak.	1881	V. A. Lowry	24	56	5	51	350,000	.....	90,700	26,920
Eastern Washington College of Education	Cheney, Wash.	1890	Walter W. Isle	...	492	78	414	1,500,000	(cc)	317,000	59,000
Ecole Des Hautes Etudes Commerciales	Montreal, Can.	1907	Esdras Minville	41	253	252	1	866,616	165,000	64,115	50,000
Edinburg Junior College	Edinburg, Texas	1927	H. A. Hodges	15	125	15	110	1,000,000	.....	35,000	10,000
El Dorado Junior College	El Dorado, Kans.	1927	Lewis Earl Walker	15	100	18	82	750,000	.....	25,000	4,880
Elizabeth City State Teachers College	Elizabeth City, N.C.	1891	Harold L. Trigg	22	468	26	442	800,000	.....	143,000	12,800
Elizabethtown College	Elizabethtown, Pa.	1899	A. C. Baugher	20	149	32	117	379,461	255,000	16,463	12,215

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Elmhurst College	Elmhurst, Ill.	1871	Timothy Lehmann	28	241	103	138	$1,197,000	$259,000	$233,250	40,000
Elmira College	Elmira, N.Y.	1855	William S. A. Pott	50	314	....	314	1,634,383	548,941	356,570	56,263
Elon College	Elon College, N.C.	1889	Leon E. Smith	28	412	112	300	.....	575,000	.....	29,000
Ely Junior College	Ely, Minn.	1922	Sigurd F. Olson	16	36	13	23	2,000,000	.....	408,431	15,000
Emerson College	Boston, Mass.	1880	Dr. Boylston Green	21	332	61	271	.....	.....	.....	6,000
Emmanuel College	Boston, Mass.	1919	Sister T. Patricia	66	647	....	647	1,250,000	.....	.....	26,000
Emmanuel College	Saskatoon, Saskatchewan, Can.	1879	Rev. Canon S. C. Steer	3	28	28	....	.....	.....	.....	.....
Emmanuel Missionary College	Berrien Springs, Mich.	1874	Alvin W. Johnson	40	502	214	288	1,105,245	392,493	562,541	30,000
Emmetsburg Junior College	Emmetsburg, Iowa	1930	R. W. Newell	6	17	5	12	(ff)	.....	1,600	2,400
Emory and Henry College	Emory, Va.	1836	Foye G. Gibson	21	79	32	47	512,983	554,833	225,000	23,000
Emory University	Atlanta, Ga.	1836	Goodrich C. White	418	1,345	889	456	10,000,000	10,000,000	1,250,000	300,000
Emporia, The College of	Emporia, Kans.	1882	Dr. Daniel A. Hirschler	28	141	16	125	747,022	116,648	142,600	25,000
Erskine College	Due West, S.C.	1839	Robert C. Grier	22	160	18	142	500,000	380,000	.....	30,000
Erskine School, The	Boston, Mass.	1920	Anne M. Young	3	50	....	50	.....	.....	.....	.....
Estherville Junior College	Estherville, Iowa	1924	Nova E. Demoney	11	25	7	18	375,000	13,000	136,000	8,000
Eureka College	Eureka, Ill.	1848	Burrus Dickinson	15	96	18	78	500,000	.....	.....	.....
Evangelical Theological Seminary, The	Naperville, Ill.	1873	Harold R. Heinmger	7	82	79	3	208,133	445,826	42,605	11,140
Evanston Collegiate Institute	Evanston, Ill.	1934	T. Otmann Firing	12	81	9	72	250,000	25,000	47,000	5,500
Evansville College	Evansville, Ind.	1854	Lincoln B. Hale	64	345	153	192	125,000	400,000	180,000	22,600
Eveleth Junior College	Eveleth, Minn.	1919	Oscar H. Gibson	14	54	7	47	.....	.....	35,000	10,000
Fairfax Hall Junior College	Waynesboro, Va.	1920	William B. Gates	16	150	....	150	250,000	.....	158,000	2,943
Fairmont-Casement Junior College	Ormond Beach, Fla.	1899	Maud van Noy	27	108	....	108	100,000	.....	190,000	3,000
Fairmont State College	Fairmont, W.Va.	1867	Dr. Joseph Rosier	36	543	132	411	1,400,000	.....	.....	36,025
Farmington State Normal School	Farmington, Maine	1864	Lorey C. Day	(xx)28	175	1	174	500,000	67,000	(i)	10,000
Fayetteville State Teachers College	Fayetteville, N.C.	1877	James W. Seabrook	23	511	26	485	827,044	.....	(ee) 56,745	21,319
Fenn College	Cleveland, Ohio	1881	Cecil V. Thomas	(yy)154	2,446	1,533	913	1,561,886	809,060	852,287	23,000
Ferris Institute	Big Rapids, Mich.	1884	Dr. Merle Scott Ward	25	293	75	218	387,000	25,000	52,000	13,500
Ferry Hall	Lake Forest, Ill.	1869	Frances G. Wallace	21	145	....	145	.....	.....	.....	8,377
Finch Junior College	New York, N.Y.	1900	Jessica G. Cosgrave	46	250	....	250	853,930	.....	357,280	7,500
Findlay College	Findlay, Ohio	1882	Carroll A. Morey(f)	15	158	65	93	580,358	481,827	85,746	20,000
Fisk University	Nashville, Tenn.	1866	Thomas E. Jones	56	656	127	529	1,600,000	3,535,074	142,937	90,000
Flat River, Junior College of	Flat River, Mo.	1922	Wesley A. Deneke	17	74	21	53	200,000	.....	138,311	9,050
Flint Junior College	Flint, Mich.	1923	L. A. Pratt	15	212	32	180	.....	.....	.....	11,000
Flora Macdonald College	Red Springs, N.C.	1896	Rev. Henry G. Bedinger	27	326	....	326	288,000	204,000	.....	16,500
Florida Normal and Industrial College	St. Augustine, Fla.	1892	John L. Tilley	25	316	54	262	655,938	.....	186,440	10,085
Florida, University of	Gainesville, Fla.	1853	John J. Tigert	146	938	892	46	11,000,000	280,000	1,362,738	260,800
Florida Agricultural and Mechanical College	Tallahassee, Fla.	1887	Dr. William H. Gray, Jr.	92	905	136	769	1,950,000	.....	(ee)207,884	17,359
Florida Southern College	Lakeland, Fla.	1885	Dr. Ludd M. Spivey	58	706	104	602	993,038	1,040,000	252,401	46,000
Florida State College for Women	Tallahassee, Fla.	1905	Doak S. Campbell	169	2,387	....	2,387	5,238,479	206,000	1,649,743	106,836
Fontbonne College	St. Louis, Mo.	1917	Sister Mary B. O'Neill	48	511	....	511	877,821	.....	.....	23,909
Fordham University	New York, N.Y.	1841	Rev. Robert I. Gannon	227	3,086	1,593	1,493	9,500,000	434,000	1,145,000	220,548
Fort Dodge Junior College	Fort Dodge, Iowa	1922	Ethel Shannon	5	50	6	44	(ff)	.....	5,000	4,500
Fort Hays Kansas State College	Hays, Kans.	1900	Lyman D. Wooster	80	258	40	218	1,500,000	.....	358,000	60,000
Fort Scott Junior College	Fort Scott, Kans.	1919	H. Edgar Williams	17	90	20	70	.....	.....	.....	.....
Fort Smith Junior College	Fort Smith, Ark.	1928	J. W. Ramsey	22	91	39	52	500,000	.....	5,343	8,000
Fort Valley State College	Fort Valley, Ga.	(qq)1895	Horace M. Bond	38	404	50	354	750,000	40,000	205,000	13,000
Frances Shimer College	Mount Carroll, Ill.	1853	Albin C. Bro	25	211	....	211	638,353	162,414	199,288	11,350
Franklin and Marshall College	Lancaster, Pa.	1787	Theodore A. Distler	41	281	281	....	2,724,050	1,457,163	67,151	100,000
Franklin College	Franklin, Ind.	1834	William G. Spencer	28	218	65	153	679,179	1,127,485	183,930	39,338
Franklin University	Columbus, Ohio	1902	Newell L. Gates	64	1,394	557	836	200,000	(g)25,000	49,000	12,000
Freeman Junior College	Freeman, S. Dak.	1900	John D. Unruh	10	20	1	19	125,000	20,000	25,000	5,000
Fresno State College	Fresno, Calif.	1911	Frank W. Thomas	79	1,385	302	1,083	1,896,616	.....	374,063	61,665
Friends University	Wichita, Kans.	1891	Walter A. Young	31	151	45	106	437,000	530,000	94,263	23,000

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Froebel League School	New York, N.Y.	1898	Dr. Ilse Forest	9	40	....	40	$80,000	$.....	$.....	.....
Fullerton Junior College	Fullerton, Calif.	1913	Dr. William T. Boyce	36	432	105	327	800,000	.....	135,684	13,500
Furman University	Greenville, S.C.	1826	John L. Plyler	50	833	210	623	2,238,158	[ss]800,759	479,122	55,000
Gainesville Junior College	Gainesville, Texas	1924	Roy P. Wilson	11	50	20	30	[ff]	.....	.....	.....
Gallaudet College	Washington, D.C.	1864	Percival Hall	20	135	80	55	1,600,000	135,000	[h]251,000	7,000
Gardner-Webb Junior College	Boiling Springs, N.C.	1905	Philip L. Elliott	18	224	100	124	300,000	6,000	75,000	7,000
Gary College	Gary, Ind.	1932	Charles D. Lutz	16	220	85	135	[ff]	.....	30,000	8,000
Geneva College	Beaver Falls, Pa.	1848	McLeod M. Pearce	25	289	60	229	1,098,224	666,453	159,965	36,500
George Peabody College for Teachers	Nashville, Tenn.	1785	Henry H. Hill	120	1,200	200	1,000	4,482,307	5,228,966	691,346	150,352
George Washington University, The	Washington, D.C.	1821	Cloyd H. Marvin	393	11,205	3,735	7,470	6,000,000	2,500,000	.....	150,000
George Williams College	Chicago, Ill.	1890	Harold C. Coffman	29	181	64	117	1,140,591	223,047	237,959	22,000
Georgetown College	Georgetown, Ky.	1829	Samuel S. Hill	23	308	235	73	435,425	510,969	292,686	18,000
Georgetown University	Washington, D.C.	1789	Rev. Lawrence C. Gorman	350	1,182	1,182	....	9,344,490	3,387,650	.....	200,000
Georgia, University of	Athens, Ga.	1785	Harmon W. Caldwell	175	2,297	736	1,561	6,477,727	939,789	3,375,839	190,000
Georgia School of Technology	Atlanta, Ga.	1888	Blake R. Van Leer	166	884	884	....	5,407,000	624,292	1,584,563	71,000
Georgia State College	Industrial College, Ga.	1890	Benjamin F. Hubert	45	300	35	265	634,204	.....	179,962	11,356
Georgia State College for Women	Milledgeville, Ga.	1889	Guy H. Wells	99	964	....	964	3,074,047	.....	1,055,556	36,000
Georgia State Womans College, The	Valdosta, Ga.	1906	Frank R. Reade	25	373	8	365	804,226	.....	179,200	21,673
Georgia Teachers College	Statesboro, Ga.	1908	Marvin S. Pittman	35	249	67	182	690,500	.....	230,000	30,000
Georgian Court College	Lakewood, N.J.	1908	Mother Mary John	32	215	....	215	.....	.....	.....	35,000
Gettysburg College	Gettysburg, Pa.	1832	Henry W. A. Hanson	4	358	117	241	1,707,302	825,000	.....	54,035
Gila Junior College of Graham County	Thatcher, Ariz.	1888	William H. Harless	10	156	58	98	209,000	.....	.....	6,000
Glendale College	Glendale, Calif.	1927	Dr. Basil H. Peterson	30	823	251	572	593,000	.....	.....	12,000
Glenville State College	Glenville, W.Va.	1872	David L. Haught	16	324	82	242	900,000	.....	96,000	18,000
Gogebic Junior College	Ironwood, Mich.	1931	R. Ernest Dear	5	16	5	11	[ff]	.....	.....	7,050
Gonzaga University	Spokane, Wash.	1887	Rev. Francis E. Corkery	66	516	516	....	1,235,000	1,502,642	385,500	50,000
Good Counsel College	White Plains, N.Y.	1923	Mother Mary Aloysia	35	250	....	250	1,198,000	[q]	.....	14,659
Goshen College	Goshen, Ind.	1894	Ernest E. Miller	28	260	85	175	251,902	122,237	73,067	27,000
Goucher College	Baltimore, Md.	1885	David A. Robertson	78	621	....	621	3,353,198	2,130,695	503,639	82,016
Graceland College	Lamoni, Iowa	1895	Alva R. Gilbert[f]	23	274	46	228	512,900	244,000	92,000	.....
Grand Rapids Junior College	Grand Rapids, Mich.	1914	Arthur Andrews	24	430	102	328	1,051,000	.....	47,320	16,000
Grand View College	Des Moines, Iowa	1895	Johannes Knudsen	10	55	17	38	95,000	130,000	38,057	6,550
Greenbrier Junior College	Lewisburg, W.Va.	1808	French W. Thompson	18	160	....	160	450,000	200,000	121,000	7,000
Greensboro College, Inc.	Greensboro, N.C.	1838	Luther L. Gobbel	40	386	....	386	756,271	566,910	291,342	26,641
Greenville College	Greenville, Ill.	1892	Henry J. Long	25	200	60	140	348,718	125,000	130,466	17,000
Grinnell College	Grinnell, Iowa	1846	Samuel N. Stevens	50	350	25	325	2,359,845	2,881,265	555,500	110,000
Grove City College	Grove City, Pa.	1876	Weir C. Ketler	45	567	93	474	3,128,178	902,781	464,286	41,310
Guilford College	Guildford College, N.C.	1834	Clyde A. Milner	23	203	59	144	536,375	663,305	126,316	28,000
Gulf Park College	Gulfport, Miss.	1919	Richard G. Cox	30	265	....	265	390,170	.....	260,644	7,293
Gustavus Adophus College	St. Peter, Minn.	1862	Dr. Edgar M. Carlson	49	269	51	218	937,081	562,114	[a]494,400	35,368
H. Sophie Newcomb Memorial College for Women	New Orleans, La.	1886	Logan Wilson	77	828	....	828	2,605,620	2,767,187	348,202	301,211
Hahnemann Medical College and Hospital	Philadelphia, Pa.	1848	Joseph S. Conwell	200	574	543	31	.....	.....	.....	34,225
Hamilton College	Clinton, N.Y.	1812	Thomas B. Rudd[f]	48	63	63	....	2,884,678	3,910,124	.....	204,437
Hamline University	St. Paul, Minn.	1854	Charles N. Pace	62	633	125	508	1,058,183	4,031,878	377,492	50,000
Hampden-Sydney College	Hampden-Sydney, Va.	1775	Edgar G. Gammon	17	58	58	....	817,298	388,885	142,476	35,000
Hampton Institute	Hampton, Va.	1868	Ralph P. Bridgman	99	891	812	579	3,946,260	9,741,196	1,052,216	72,109
Hannibal-La Grange College	Hannibal, Mo.	1858	Dr. Aaron E. Prince	14	178	30	148	350,000	50,000	71,000	8,500
Hanover College	Hanover, Ind.	1827	Albert G. Parker, Jr.	17	175	28	147	815,000	1,938,874	130,000	50,000
Harcum Junior College	Bryn Mawr, Pa.	1915	Edith H. Harcum	30	[p]176	....	176	200,000	.....	174,000	3,000
Hardin Junior College	Wichita Falls, Texas	1922	James B. Boren	31	520	195	325	595,077	360,000	166,500	7,284
Hardin-Simmons University	Abilene, Texas	1891	Rupert N. Richardson	43	832	212	620	950,681	1,224,440	280,830	31,236

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Harding College	Searcy, Ark.	1924	George S. Benson	40	292	106	186	$675,000	$16,075	$285,000	20,000
Harris Teachers College	St. Louis, Mo.	1904	Charles H. Philpott	29	517	107	410	274,217	.....	131,418	20,000
Hartwick College	Oneonta, N.Y.	1928	Henry J. Arnold	24	158	22	136	425,000	125,000	96,926	15,600
Harvard University	Cambridge, Mass.	1636	James B. Conant	1,775	2,196	1,971	225	.....	153,133,329	(a)15,583,310	4,608,862
Hastings College	Hastings, Nebr.	1882	William M. French	45	200	40	160	486,544	656,535	161,625	32,500
Haverford College	Haverford, Pa.	1833	Felix Morley	40	186	140	46	4,098,896	4,467,142	371,720	164,000
Hawaii, University of	Honolulu, Territory of Hawaii	1907	Gregg M. Sinclair	200	3,553	2,284	1,269	3,904,344	42,315	1,980,898	537,333
Hebrew Union College	Cincinnati, Ohio	1875	Dr. Julian Morgenstern	19	65	65	....	2,297,745	2,117,000	270,000	110,000
Heidelberg College	Tiffin, Ohio	1850	Dr. Nevin C. Harner	27	273	40	233	758,105	983,242	229,971	36,270
Henderson State Teachers College	Arkadelphia, Ark.	1929	Dean D. McBrien	32	283	84	199	984,650	.....	171,486	26,272
Hendrix College	Conway, Ark.	1884	John H. Reynolds	31	291	87	204	859,747	1,070,123	(a)176,872	47,445
Hershey Junior College	Hershey, Pa.	1938	A. G. Breidenstine	(k)18	(l)116	(m)50	(n)66	(o)2,500,000	.....	30,000	9,000
Hesston College and Bible School	Hesston, Kans.	1908	Milo F. Kauffman	12	226	74	152	97,000	35,000	60,000	6,000
Hibbing Junior College	Hibbing, Minn.	1916	H. A. Drescher	20	151	33	118	(ff)	(ff)	(ff)	6,230
High Point College	High Point, N.C.	1924	Gideon I. Humphreys	30	334	98	236	837,070	137,218	120,827	17,364
Highland Junior College	Highland, Kans.	1857	Ruth M. Culbertson	7	27	6	21	75,000	.....	11,700	3,600
Highland Park Junior College	Highland Park, Mich.	1918	George I. Altenburg	12	277	89	188	(ff)	.....	19,485	7,604
Hillsboro Junior College	Hillsboro, Texas	1923	Loy W. Hartsfield	16	101	30	71	178,729	.....	18,861	6,859
Hillsdale College	Hillsdale, Mich.	1844	Harvey L. Turner	24	325	40	285	727,385	752,804	145,800	29,500
Hillyer Junior College	Hartford, Conn.	1883	Alan S. Wilson	19	160	63	97	500,000	100,000	88,715	5,000
Hinds Junior College	Raymond, Miss.	1917	George M. McLendon	27	349	136	213	458,663	.....	110,000	5,500
Hiram College	Hiram, Ohio	1850	Paul H. Fall	21	202	39	163	997,774	995,768	217,264	40,000
Hobart & William Smith Colleges	Geneva, N.Y.	1822	John M. Potter	37	230	....	....	1,100,000	700,000	575,000	88,240
Hockaday Junior College	Dallas, Texas	1931	Ela Hockaday	21	168	....	168	.....	.....	.....	6,355
Hofstra College	Hempstead, L.I., N.Y.	1935	Dr. John C. Adams	31	428	156	272	932,000	723,000	140,510	20,380
Hollins College	Hollins College, Va.	1842	Bessie C. Randolph	40	333	....	333	1,476,901	496,380	423,490	39,000
Holton Arms-School and Junior College, The	Washington, D.C.	1901	Jessie M. Holton	48	400	....	400	500,000	.....	275,000	6,500
Holy Cross, College of the	Worcester, Mass.	1843	Rev. Joseph R. N. Maxwell	91	250	250	....	4,857,948	322,504	900,000	136,050
Holy Heart Seminary	Halifax, N.S., Can.	1893	Rev. Julien P. Deville	10	88	88	....	390,000	65,000	.....	9,460
Holy Names, College of the	Oakland, Calif.	1868	Sister M. R. Emmanuella	48	336	....	336	.....	.....	.....	27,407
Holy Names College	Spokane, Wash.	1907	Sister M. E. Clare	23	150	....	150	205,219	.....	.....	14,500
Hood College	Frederick, Md.	1893	Henry I. Stahr	50	619	....	619	1,429,204	816,020	.....	25,000
Hope College	Holland, Mich.	1866	Wynand Wichers	32	312	79	233	1,500,000	950,000	150,000	37,000
Houghton College	Houghton, N.Y.	1883	Stephen W. Paine	33	326	91	235	309,968	277,527	176,778	22,000
Houston, University of	Houston, Texas	1927	Dr. Edison E. Oberholtzer	123	3,026	769	2,257	1,927,393	.....	285,000	27,340
Howard College	Birmingham, Ala.	1841	Harwell G. Davis	45	677	367	310	200,000	720,000	350,000	30,500
Howard Payne College	Brownwood, Texas	1889	Thomas H. Taylor	26	758	265	493	730,575	1,310,257	178,964	26,500
Howard University	Washington, D.C.	1867	Mordecai W. Johnson	259	3,579	1,354	2,225	9,889,488	1,021,645	1,745,811	211,775
Humboldt State College	Arcata, Calif.	1913	Arthur S. Gist	30	210	55	155	1,023,979	.....	140,482	20,071
Hunter College of the City of New York	New York, N.Y.	1869	George N. Shuster	596	12,928	358	12,570	16,584,214	176,528	5,220	152,994
Huntingdon College	Montgomery, Ala.	1854	Hubert Searcy	40	609	....	609	1,000,000	750,000	400,000	25,000
Huntington College	Huntington, Ind.	1897	Elmer Becker	19	90	32	58	157,077	87,702	75,081	15,784
Huron College	London, Ont., Can.	1863	Rev. Charles A. Seager	8	30	30	....	.....	.....	.....	.....
Huron College	Huron, S. Dak.	1883	George F. McDougall	16	115	21	94	558,282	741,506	90,850	24,785
Hutchinson Junior College	Hutchinson, Kans.	1928	C. M. Lockman	15	250	48	202	325,000	.....	.....	5,000
Idaho, The College of	Caldwell, Idaho	1891	William W. Hall, Jr.	25	199	50	149	415,172	524,167	156,126	20,000
Idaho, University of	Moscow, Idaho	1889	Harrison C. Dale	169	953	270	683	4,100,000	4,347,925	1,247,790	115,000
Illinois, University of	Urbana, Ill.	1867	Arthur C. Willard	1,016	7,344	2,770	4,574	43,768,719	1,771,201	15,474,984	1,807,417
Illinois College	Jacksonville, Ill.	1829	Harris G. Hudson	14	87	37	50	896,192	1,157,443	114,384	34,288
Illinois Institute of Technology	Chicago, Ill.	1892	Henry T. Heald	175	3,127	2,862	265	4,822,761	1,835,909	4,374,703	96,910
Illinois State Normal University	Normal, Ill.	1857	Raymond W. Fairchild	185	942	123	819	2,715,847	.....	792,178	124,000
Illinois Wesleyan University	Bloomington, Ill.	1850	William E. Shaw	50	503	126	377	866,322	1,437,731	181,045	45,000

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Immaculata College	Immaculata, Pa.	1914	Rev. Francis J. Furey	41	297	....	297	$4,000,000	$ [q]	$.....	20,083
Immaculata Junior College	Washington, D.C.	1920	Sister St. Philomene	16	67	....	67	800,000	.....	.....	8,000
Incarnate Word College	San Antonio, Texas	1881	Sister M. Columkille	65	727	....	727	1,918,086	1,173,792	161,897	34,258
Independence Junior College	Independence, Kans.	1925	Evan R. Stevens	15	71	23	48	[ff]	.....	.....	4,468
Indiana Central College	Indianapolis, Ind.	1903	I. Lynd Esch	[gg]22	163	45	118	600,198	83,047	130,814	15,529
Indiana State Teachers College	Terre Haute, Ind.	1865	Ralph N. Tirey	115	1,163	244	919	4,388,636	.....	.....	146,000
Indiana University	Bloomington, Ind.	1820	Herman B. Wells	400	5,160	2,045	3,115	20,599,193	768,551	[a]4,910,449	500,000
Iowa, State University of	Iowa City, Iowa	1847	Virgil M. Hancher	518	4,153	1,382	2,771	23,341,323	1,194,123	8,057,165	555,879
Iowa State College	Ames, Iowa	1858	Charles E. Friley	700	3,189	1,178	2,011	17,000,000	1,250,000	9,700,000	380,000
Iowa State Teachers College	Cedar Falls, Iowa	1876	Malcolm Price	117	992	118	874	4,295,789	.....	816,632	123,088
Iowa Wesleyan College	Mount Pleasant, Iowa	1842	Stanley B. Niles	30	242	53	189	800,000	600,000	140,000	40,000
Itasca Junior College	Coleraine, Minn.	1922	Joseph B. Davis	17	81	18	63	9,994,052	36,149	.....	8,444
Ithaca College	Ithaca, N.Y.	1892	Leonard B. Job	40	295	65	230	400,000	3,500	.....	.....
Jackson College	Jackson, Miss.	1877	Jacob L. Reddix	37	237	12	225	325,000	.....	81,000	7,000
Jackson Junior College	Jackson, Mich.	1928	George L. Greenawalt	15	94	20	74	64,544	.....	38,746	6,000
Jacksonville State	Jacksonville, Ala.	1893	Houston Cole	49	360	40	320	2,000,000	.....	260,000	25,000
James Millikin University, The	Decatur, Ill.	1901	Clarence L. Miller[f]	36	377	77	300	1,189,447	1,135,373	44,599	37,134
Jamestown College	Jamestown, N. Dak.	1883	Barend H. Kroeze	24	181	32	149	868,375	1,100,000	139,000	30,000
Jarvis Christian College	Hawkins, Texas	1910	Peter C. Washington	17	131	16	115	1,320,000	.....	.....	8,688
John B. Stetson University	DeLand, Fla.	1883	William S. Allen	52	516	101	415	1,800,000	900,000	200,000	47,000
John Brown University	Siloam Springs, Ark.	1919	John E. Brown	50	250	100	150	.....	.....	.....	.....
John Carroll University	University Heights, Cleveland, Ohio	1886	Rev. Thomas J. Donnelly	35	189	189	....	2,590,000	2,500,000	450,000	40,000
Johns Hopkins University, The	Baltimore, Md.	1876	Isaiah Bowman	771	2,594	1,410	1,184	14,555,027	32,408,394	4,247,360	718,259
Joliet Junior College	Joliet, Ill.	1901	Roosevelt Basler	25	272	60	212	[ff]3,000,000	.....	.....	12,000
Jones County Junior College	Ellisville, Miss.	1930	James B. Young	42	198	61	137	435,682	.....	192,741	14,153
Judson College	Marion, Ala.	1838	John I. Riddle	27	273	....	273	680,131	523,007	206,999	20,000
Juniata College	Huntingdon, Pa.	1876	Calvert N. Ellis	30	261	78	183	1,096,411	741,118	229,303	51,300
Junior College of Augusta	Augusta, Ga.	1925	Eric W. Hardy	29	176	71	105	500,000	.....	25,000	11,000
Junior College of Connecticut	Bridgeport, Conn.	1927	E. Everett Cortright	44	658	254	404	254,000	.....	96,011	7,400
Kalamazoo College	Kalamazoo, Mich.	1833	Paul L. Thompson	42	283	64	219	1,410,949	1,238,106	291,322	35,840
Kansas, The University of	Lawrence, Kans.	1865	Deane W. Malott	300	2,523	737	1,785	10,338,319	256,000	3,000,000	360,000
Kansas City, University of	Kansas City, Mo.	1929	Clarence R. Decker	125	2,096	841	1,255	1,955,851	1,087	604,406	115,557
Kansas City, Junior College of	Kansas City, Mo.	1915	Arthur M. Swanson	35	886	385	501	1,090,000	.....	182,800	29,000
Kansas State College of Agriculture and Applied Science	Manhattan, Kans.	1863	Milton S. Eisenhower	170	1,661	594	1,067	5,000,000	506,000	4,500,000	142,995
Kansas State Teachers College	Pittsburg, Kans.	1903	Rees H. Hughes	93	435	95	340	2,750,000	.....	639,397	77,839
Kansas State Teachers College of Emporia	Emporia, Kans.	1863	James F. Price	115	350	....	....	.....	250,000	.....	85,000
Kansas Wesleyan University	Salina, Kans.	1885	Edgar K. Morrow	32	353	154	199	500,000	765,000	100,000	15,000
Kent State University	Kent, Ohio	1910	George A. Bowman	111	900	135	765	4,575,393	.....	800,000	77,000
Kentucky, University of	Lexington, Ky.	1865	Herman L. Donovan	350	2,216	652	1,564	8,970,818	190,462	3,170,188	352,321
Kentucky State College for Negroes	Frankfort, Ky.	1886	Dr. Rufus B. Atwood	25	369	52	317	1,178,388	.....	150,000	15,856
Kentucky Wesleyan College	Winchester, Ky.	1860	Paul S. Powell	15	122	30	92	470,483	225,680	87,845	18,679
Keuka College	Keuka Park, N.Y.	1890	Henry E. Allen	33	[v]332	....	[v]332	1,011,505	368,283	309,866	32,868
Keystone College	La Plume, Pa.	1868	Byron S. Hollingshead	18	145	30	115	500,000	34,000	75,000	12,000
Kilgore College	Kilgore, Texas	1935	Basil E. Masters	29	732	290	442	650,000	.....	109,257	9,650
King College	Bristol, Tenn.	1867	Robert T. L. Liston	8	65	28	37	300,000	215,000	45,000	7,000
King's College, University of	Halifax, N.S., Can.	1790	Rev. Canon A. S. Walker	13	47	28	19	517,516	975,609	87,246	35,000
Kletzing College	University Park, Iowa	1905	Charles W. Butler	13	100	30	70	376,199	43,672	50,709	16,346
Knox College	Galesburg, Ill.	1837	Carter Davidson	51	389	57	332	1,782,028	2,651,134	411,092	68,500
Knox College	Toronto, Ont., Can.	1844	Walter W. Bryden	5	56	56	....	921,021	408,906	36,406	40,000
Knoxville College	Knoxville, Tenn.	1872	William L. Imes	18	190	42	148	750,000	300,000	85,000	13,229
Kokomo Junior College	Kokomo, Ind.	1932	Hurd A. Drake	7	30	2	28	.....	.....	7,000	2,000

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La Grange College	La Grange, Ga.	1831	Hubert T. Quillian	19	148	....	148	$390,399	$898,117	$115,517	13,500
La Salle College	Philadelphia, Pa.	1863	Rev. Br. Emilian James	52	85	85	....	2,057,370	(q)	173,587	18,000
La Sierra College	Arlington, Calif.	1922	Lowell R. Rasmussen	40	370	148	222	536,933	28,000	456,304	13,100
La Verne College	La Verne, Calif.	1891	C. Ernest Davis	18	115	28	87	274,800	57,788	63,299	10,000
Lafayette College	Easton, Pa.	1824	Ralph C. Hutchison	57	330	294	36	4,462,610	4,014,307	551,000	112,557
Lake Erie College	Painesville, Ohio	1856	Helen D. Bragdon	38	158	....	158	1,316,308	799,377	213,180	34,332
Lake Forest College	Lake Forest, Ill.	1857	Ernest A. Johnson	28	336	65	271	1,600,000	1,355,096	325,055	54,815
Lamar Union Junior College	Beaumont, Texas	1923	O. B. Archer(f)	24	479	220	259	800,000	.....	150,000	5,309
Lander College	Greenwood, S.C.	1872	John M. Rast	30	269	1	268	276,260	195,000	124,000	15,500
Langston University	Langston, Okla.	1897	G. Lamar Harrison	48	505	102	403	1,086,618	.....	(l)250,000	14,000
Lassen Junior College	Susanville, Calif.	1925	Gilbert A. Collyer	20	38	....	....	300,000	.....	.....	5,500
Laval University	Quebec, Can.	1852	Mgr. Cyrille Gagnon	892	4,067	3,292	775	3,500,000	2,500,000	685,000	760,000
Law Society of Upper Canada, The	Toronto, Ontario, Can.	1797	John S. Denison	14	112	100	12	.....	.....	.....	100,000
Lawrence Institute of Technology	Detroit, Mich.	1932	E. George Lawrence	47	215	208	7	350,000	.....	.....	2,500
Le Moyne College	Memphis, Tenn.	1869	Hollis F. Price	26	265	37	228	450,000	.....	88,000	14,000
Lebanon Valley College	Annville, Pa.	1866	Clyde A. Lynch	25	218	64	154	728,859	734,428	183,831	31,240
Lee Junior College	Goose Creek, Texas	1934	Nicholas S. Holland	12	348	116	232	.....	.....	64,280	9,233
Lees Junior College	Jackson, Ky.	1883	Jesse O. Van Meter	15	....	....	....	225,000	50,000	70,000	4,500
Lees-McRae College	Banner Elk, N.C.	1899	Dr. William C. Tate	17	106	16	90	409,988	120,301	51,477	12,000
Lehigh University	Bethlehem, Pa.	1865	P. M. Palmer	76	281	281	....	6,552,295	8,000,000	793,439	262,030
Lenoir Rhyne College	Hickory, N.C.	1891	Pleasant E. Monroe	27	407	97	310	735,252	770,543	201,588	25,000
Lesley College	Cambridge, Mass.	1909	Dr. Trentwell M. White	18	89	....	89	.....	.....	.....	.....
Lewis and Clark College	Portland, Oreg.	1867	Morgan S. Odell	26	141	37	104	382,588	280,435	90,000	18,000
Lewiston State Normal College	Lewiston, Idaho	1893	Glenn W. Todd	22	233	24	209	1,045,000	.....	21,373	20,000
Limestone College	Gaffney, S.C.	1845	Robert C. Grandberry	31	341	....	341	689,899	523,967	229,211	21,610
Lincoln College	Lincoln, Ill.	1865	Milton D. McLean	9	33	4	29	169,405	334,132	37,270	12,000
Lincoln Memorial University	Harrogate, Tenn.	1897	Stewart W. McClelland	20	234	50	184	1,176,107	719,540	118,500	25,000
Lincoln University	Jefferson City, Mo.	1866	Sherman D. Scruggs	69	568	122	446	1,212,250	.....	401,255	59,017
Lincoln University	Lincoln University, Pa.	1854	Walter L. Wright	26	120	120	....	753,745	1,025,437	178,000	39,500
Lindenwood College	St. Charles, Mo.	1827	Harry M. Gage	49	494	....	494	1,908,642	2,170,654	551,067	27,675
Lindsey Wilson Junior College	Columbia, Ky.	1902	Victor P. Henry	11	175	15	160	151,922	21,401	65,084	6,341
Linfield College	McMinnville, Oreg.	1858	Harry L. Dillin	30	285	55	230	1,000,000	1,100,000	130,000	30,000
Little Rock Junior College	Little Rock, Ark.	1927	John A. Larson	19	314	128	186	.....	1,500,000	45,000	18,000
Livingston College	Salisbury, N.C.	1879	William J. Trent	24	428	100	328	730,479	46,500	142,039	20,895
Lon Morris College	Jacksonville, Texas	1873	Cecil E. Peeples	12	126	31	95	272,244	111,000	2,629	6,430
Long Beach City College	Long Beach, Calif.	1927	George E. Dotson	295	20,587	8,517	12,070	.....	.....	932,695	36,000
Long Island University	Brooklyn, N.Y.	1926	Tristram W. Metcalfe	27	404	219	185	456,776	500,000	230,742	17,426
Loras College	Dubuque, Iowa	1839	Very Rev. M. J. Martin	54	394	258	136	2,000,000	1,300,000	250,000	97,000
Loretto Heights College	Loretto, Colo.	1898	Paul J. Ketrick	35	325	....	325	1,000,000	.....	.....	17,000
Los Angeles City College	Los Angeles, Calif.	1929	Kenneth M. Kerans(f)	120	5,570	1,339	4,231	3,805,039	.....	770,415	60,000
Louisburg College	Louisburg, N.C.	1787	Dr. Walter Patten	20	246	35	211	420,200	62,500	92,465	6,550
Louisiana College	Pineville, La.	1906	Dr. Edgar Godbold	24	348	124	224	676,419	303,526	150,576	13,705
Louisiana Negro Normal and Industrial Institute	Grambling, La.	1901	Ralph Jones	50	522	37	485	850,000	.....	140,000	8,000
Louisiana Polytechnic Institute	Ruston, La.	1894	Claybrook Cottingham	105	985	287	698	3,500,000	.....	841,911	34,025
Louisiana State University and Agricultural and Mechanical College	Baton Rouge, La.	1848	William B. Hatcher	372	3,619	1,662	1,957	24,578,607	.....	4,118,269	372,702
Louisville, University of	Louisville, Ky.	1837	Einar W. Jocobsen	344	4,172	2,015	2,157	2,946,671	1,106,687	1,157,534	123,446
Lowell Textile Institute	Lowell, Mass.	1895	Kenneth R. Fox	34	71	60	11	1,050,000	.....	(ee)180,465	3,131
Lower Columbia Junior College	Longview, Wash.	1934	Turfield D. Schindler	12	169	29	140	75,600	.....	29,450	4,200
Loyola College	Montreal, Quebec, Can.	1896	Rev. Edward M. Brown	18	201	201	....	1,600,000	.....	183,000	21,174
Loyola College	Baltimore, Md.	1852	Rev. Edward B. Bunn	27	145	145	....	1,837,815	2,263,333	100,000	35,000
Loyola University	Los Angeles, Calif.	1865	Rev. Edward J. Whelan	45	165	139	26	831,754	.....	.....	35,000
Loyola University	Chicago, Ill.	1870	Rev. James T. Hussey(f)	725	4,045	1,398	2,647	.....	.....	.....	.....
Loyola University	New Orleans, La.	1912	Percy A. Roy	185	1,058	522	536	3,000,000	5,000,000	.....	105,130
Luther College	Decorah, Iowa	1861	Dr. O. J. H. Preus	38	301	83	218	978,413	538,000	121,175	77,000

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Lutheran Theological Seminary	Gettysburg, Pa.	1824	Abdel R. Wentz	12	94	93	1	$588,507	$623,907	$52,355	54,108
Lutheran Theological Seminary at Philadelphia	Philadelphia, Pa.	1864	Paul J. Hoh	11	88	88	....	815,000	548,328	80,938	49,078
Lutheran Theological Southern Seminary	Columbia, S.C.	1830	John L. Yost	6	35	35	....	213,500	200,000	20,000	12,500
Lynchburg College	Lynchburg, Va.	1903	Riley B. Montgomery	22	226	77	149	562,518	310,906	203,945	22,000
Lyons Township Junior College	La Grange, Ill.	1929	George S. Olsen	16	125	60	65	(ff)	.....	.....	7,900
Macalester College	St. Paul, Minn.	1885	Charles J. Turck	58	558	101	457	1,450,000	2,324,000	349,980	40,730
Mac Murray College for Women	Jacksonville, Ill.	1846	C. P. McClelland	56	712	....	712	2,106,442	3,995,557	882,950	39,900
Madawaska Training School	Fort Kent, Me.	....	Richard F. Crocker	6	110	6	104	.....	.....	.....	3,000
Madison College	Madison College, Tenn.	1904	Dr. E. A. Sutherland	23	140	10	130	1,500,000	.....	.....	23,000
Madison College	Harrisonburg, Va.	1908	Samuel P. Duke	88	1,186	13	1,173	2,200,000	65,739	650,224	41,697
Maine, University of	Orono, Maine	1865	Arthur A. Hauk	115	989	307	682	5,706,400	1,172,463	1,795,000	204,719
Mallinckrodt College	Wilmette, Ill.	1918	Mother Ignata Biehn	6	12	....	12	800,000	.....	.....	17,895
Manchester College	North Manchester, Ind.	1889	Vernon F. Schwalm	35	410	95	315	623,246	590,616	(a)209,594	38,037
Manhattan College	New York, N.Y.	1853	Br. B. Thomas	42	310	310	....	.....	.....	.....	90,000
Manhattanville College of the Sacred Heart	New York, N.Y.	1841	Eleanor M. O'Byrne	79	557	....	557	3,098,227	400,902	401,563	65,068
Manitoba, The University of	Winnipeg, Manitoba, Can.	1877	Henry P. Armes	200	2,592	1,514	1,078	8,300,000	1,043,000	1,100,000	111,970
Manitoba Law School	Winnipeg, Manitoba, Can.	1914	.....	17	18	14	4	.....	.....	9,015	3,000
Marian College	Indianapolis, Ind.	1937	Mother M. Clarissa	26	220	....	220	.....	.....	.....	20,000
Marietta College	Marietta, Ohio	1835	Dr. William A. Shimer	30	170	40	130	926,508	1,587,882	146,555	123,869
Marin Junior College	Kentfield, Calif.	1926	Ward H. Austin	20	271	78	193	389,426	.....	186,750	13,100
Marion College	Marion, Ind.	1920	William F. McConn	20	343	....	....	268,087	90,000	100,000	16,000
Marion Institute	Marion, Ala.	1842	James T. Murfee	25	467	467	....	500,000	.....	.....	4,385
Marquette University	Milwaukee, Wis.	1864	Rev. Peter A. Brooks	460	3,807	1,799	2,008	5,360,087	2,372,638	1,703,507	154,994
Mars Hill Junior College	Mars Hills, N.C.	1856	Hoyt Blackwell	54	738	190	548	1,019,000	125,000	105,000	16,500
Marshall College	Huntington, W.Va.	1837	John D. Williams	88	1,412	316	1,096	2,135,734	.....	375,800	53,250
Martin College	Pulaski, Tenn.	1870	Edgar H. Elam	15	82	9	73	200,000	125,000	50,007	4,000
Mary Baldwin College	Staunton, Va.	1842	Lewis W. Jarman	33	318	....	318	683,546	572,308	291,058	32,000
Mary Brooks School, Inc.	Boston, Mass.	1924	Jane Brooks	16	102	....	102	130,000	150,000	40,800	2,300
Mary Washington College	Fredericksburg, Va.	1908	Morgan L. Combs	92	1,563	....	1,563	5,000,000	.....	760,629	55,000
Marygrove College	Detroit, Mich.	1910	Sister M. Honora	75	771	....	771	3,877,591	.....	459,278	43,630
Maryland, University of	College Park and Baltimore, Md.	1807	Harry C. Byrd	802	4,105	2,087	2,018	.....	2,200,732	5,194,319	178,500
Maryland State Teachers College	Bowie, Md.	1867	William E. Henry	12	110	10	100	556,163	.....	72,570	10,667
Maryland State Teachers College	Salisbury, Md.	1922	Jefferson D. Blackwell	(a)20	(a)120	(a)18	(a)102	(a)823,830	.....	(a)92,810	(a)20,336
Maryland State Teachers College	Towson, Md.	1865	M. Theresa Wiedefeld	19	286	6	280	1,618,194	167,940	56,304	40,000
Marymount College	Los Angeles, Calif.	1935	Mother St. Clare	13	52	....	52	.....	.....	.....	.....
Marymount College	Salina, Kans.	1922	Mother M. Chrysostom	30	211	....	211	1,101,538	.....	176,650	19,107
Marymount College	Tarrytown-on-Hudson, N.Y.	1907	Mother M. T. Dalton	50	350	....	350	2,054,206	1,000,000	335,960	28,625
Maryville College	Maryville, Tenn.	1819	Ralph W. Lloyd	33	458	61	397	870,716	1,891,989	347,414	52,000
Maryville College of the Sacred Heart	St. Louis, Mo.	1872	Rev. Mother Marie O. Mouton	32	234	....	234	1,196,475	299,872	.....	23,000
Marywood College	Scranton, Pa.	1915	Sister M. S. Morgan	54	434	....	434	3,030,000	75,000	137,000	37,000
Mason City Junior College	Mason City, Iowa	1918	Harold J. Snyder	15	62	....	....	.....	.....	.....	6,580
Massachusetts Institute of Technology	Cambridge, Mass.	1861	Dr. Karl Taylor Compton	....	1,173	1,113	60	17,109,000	40,000,000	5,158,000	377,962
Massachusetts State College	Amherst, Mass.	1863	Hugh P. Baker	135	791	164	627	4,579,270	451,629	3,054,064	137,258
Massachusetts State Teachers College	Bridgewater, Mass.	1840	John J. Kelly	39	345	10	335	1,343,625	15,000	.....	22,225
Massachusetts State Teachers College	Fitchburg, Mass.	1894	Dr. William J. Sanders	43	140	22	118	900,000	.....	.....	36,000
Massachusetts State Teachers College	Framingham, Mass.	1839	Martin Francis O'Connor	47	400	....	400	1,000,000	(i)	.....	20,000
Massachusetts State Teachers College	Lowell, Mass.	1897	James Dugan	13	171	2	169	265,000	.....	.....	10,000
Massachusetts State Teachers College	North Adams, Mass.	1894	Grover C. Bowman	20	80	10	70	500,000	(cc)76,355	9,500	20,000
Massachusetts State Teachers College	Salem, Mass.	1854	Edward A. Sullivan	41	309	14	295	1,000,000	.....	.....	15,000

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Massachusetts State Teachers College	Westfield, Mass.	1839	Edward J. Scanlon	23	84	....	84	$253,800	$.....	(hh) $22,000	15,000
Massachusetts State Teachers College	Worcester, Mass.	1871	Clinton E. Carpenter	19	108	3	105	535,000	(cc)	99,550	18,200
McCormick Theological Seminary	Chicago, Ill.	1829	J. Harry Cotton	22	175	151	24	1,373,990	4,032,007	254,104	87,000
McGill University	Montreal, Quebec, Can.	1821	Dr. F. Cyril James	620	3,933	2,456	1,477	15,518,607	24,383,091	2,576,423	433,436
McKendree College	Lebanon, Ill.	1828	Carl C. Bracy	18	89	42	47	260,647	4,000	65,979	19,100
Mc Master University	Hamilton, Ont., Can.	1887	George P. Gilmour	66	1,242	720	522	1,596,700	1,906,133	241,454	59,000
Mc Murry College	Abilene, Texas	1921	Harold G. Cooke	35	275	50	225	458,497	575,717	128,275	13,500
Mc Pherson College	McPherson, Kans.	1887	Dr. Woodford W. Peters	22	173	59	114	506,500	382,000	115,000	15,000
Memphis State College	Memphis, Tenn.	1909	Jennings B. Sanders	58	709	106	603	1,264,000	.....	261,317	36,000
Menlo Junior College	Menlo Park, Calif.	1927	William E. Kratt	9	152	152	....	579,852	.....	181,450	12,000
Mercer University	Macon, Ga.	1833	Dr. Spright Dowell	37	314	139	175	1,318,556	2,353,880	1,039,171	85,000
Mercyhurst College	Erie, Pa.	1926	Sister M. D. Preston	32	225	....	225	1,500,000	1,600,000	.....	17,000
Meredith College	Raleigh, N.C.	1891	Carlyle Campbell	43	611	....	611	1,424,420	543,300	334,427	29,400
Meridian Municipal Junior College	Meridian, Miss.	1937	John B. Pearson	33	603	229	374	1,000,000	.....	85,000	9,000
Mesa Junior College	Grand Junction, Colo.	1925	Horace J. Wubben	17	365	89	276	348,100	.....	84,899	8,700
Miami, University of	Coral Gables, Fla.	1925	Bowman F. Ashe	87	1,104	382	722	1,603,000	.....	1,011,848	69,238
Miami University	Oxford, Ohio	1809	A. K. Morris(f)	225	2,118	347	1,771	6,829,659	.....	2,778,512	185,000
Michigan, University of	Ann Arbor, Mich.	1817	Alexander G. Ruthven	770	8,799	3,140	5,659	62,198,789	16,910,294	13,812,203	1,240,942
Michigan College of Mining and Technology	Houghton, Mich.	1885	Grover C. Dillman	65	349	276	73	2,426,950	.....	534,862	50,000
Michigan State College	East Lansing, Mich.	1855	John A. Hannah	474	4,827	1,501	3,326	16,757,793	1,902,143	8,644,211	182,717
Michigan State Normal College	Ypsilanti, Mich.	1849	John M. Munson	162	1,199	111	1,088	5,904,142	70,000	735,541	116,226
Middle Georgia College	Cochran, Ga.	1875	Leo H. Browning	16	161	76	85	560,000	.....	97,400	10,000
Middle Tennessee State College	Murfreesboro, Tenn.	1909	Quintin M. Smith	42	350	50	300	1,150,000	.....	225,000	35,000
Middlebury College	Middlebury, Vt.	1800	Samuel S. Stratton	70	601	75	526	2,734,504	4,719,905	568,218	171,981
Middlesex University	Waltham & Boston, Mass.	1845	Rev. Hugh W. Smith	65	386	379	7	1,251,348	.....	204,029	7,000
Midland College	Fremont, Nebr.	1887	William P. Hieronymus	27	163	60	103	390,814	174,335	124,688	27,000
Miles College	Birmingham, Ala.	1905	William A. Bell(f)	18	287	52	135	275,000	.....	(a)54,796	10,000
Mills College	Oakland, Calif.	1852	Lynn T. White	98	692	....	....	3,105,000	2,258,600	700,000	95,222
Mills School, The	New York, N.Y.	1909	Amy Hostler	16	135	....	135	.....	.....	65,000	.....
Millsaps College	Jackson, Miss.	1892	Marion L. Smith	48	354	77	277	1,000,000	850,000	40,000	35,000
Milwaukee-Downer College	Milwaukee, Wis.	1851	Lucia R. Briggs	48	416	....	416	.....	2,344,851	335,000	49,500
Miner Teachers College	Washington, D.C.	1851	Eugene A. Clark	54	359	10	349	.....	.....	214,845	33,784
Minnesota, University of	Minneapolis, Minn.	1851	James L. Morrill	(a)1,562	10,896	3,407	7,489	42,447,326	25,970,513	(a)18,400,707	1,327,278
Minnesota State Teachers College	Bemidji, Minn.	1913	Dr. A. C. Clark	37	188	41	147	1,055,000	.....	160,000	15,536
Minnesota State Teachers College	Mankato, Minn.	1868	Frank D. McElroy	55	548	68	480	3,500,000	.....	214,872	27,611
Minnesota State Teachers College	Moorhead, Minn.	1887	Otto W. Snarr	52	347	24	323	1,025,000	.....	169,749	28,155
Minnesota State Teachers College	St. Cloud, Minn.	1869	Dudley S. Brainard	59	520	38	482	.....	.....	331,679	52,535
Misericordia College	Dallas, Pa.	1923	Sister Mary Pierre	48	226	....	226	1,106,000	.....	.....	20,800
Mission House College and Seminary	Plymouth, Wis.	1860	Dr. Paul Grosshuesch	15	96	69	27	500,000	68,000	58,000	25,000
Mississippi, University of	University (near Oxford, Miss.)	1844	Alfred B. Butts	93	856	365	491	4,753,982	733,808	1,085,559	128,031
Mississippi College	Clinton, Miss.	1826	Dotson McG. Nelson	25	290	136	154	709,041	715,768	324,091	28,000
Mississippi Southern College	Hattiesburg, Miss.	1910	Robert C. Cook	54	560	31	529	1,800,000	.....	189,088	75,000
Mississippi State College	State College, Miss.	1878	George D. Humphrey	85	761	515	246	6,000,000	239,789	3,000,000	91,867
Mississippi State College for Women	Columbus, Miss.	1884	Burney L. Parkinson	75	901	....	901	3,000,000	.....	504,485	66,500
Missouri, University of	Columbia, Mo.	1839	Frederick A. Middlebush	428	2,578	1,073	1,505	19,386,084	2,225,090	5,003,041	505,000
Missouri Valley College	Marshall, Mo.	1888	John R. Cable	24	116	15	101	913,528	584,256	255,000	24,000
Mitchell College	Statesville, N.C.	1853	Frances Stribling	14	62	6	56	175,000	10,000	35,000	8,000
Moberly Junior College	Moberly, Mo.	1927	B. W. Bradley	20	225	89	136	234,132	.....	.....	6,896
Modesto Junior College	Modesto, Calif.	1921	Charles D. Yates	34	597	295	302	800,000	.....	363,613	23,202
Monmouth College, The	Monmouth, Ill.	1853	James H. Grier	45	269	26	243	1,307,655	1,962,942	240,000	40,000
Montana School of Mines	Butte, Mont.	1893	Dr. Francis A. Thomson	25	33	30	3	1,500,000	800,000	298,000	17,000
Montana State College	Bozeman, Mont.	1893	Roland R. Renne	89	1,155	160	995	3,685,634	560,935	1,595,601	65,000
Montana State Normal College	Dillon, Mont.	1893	Sheldon E. Davis	9	27	1	26	800,000	.....	85,000	26,000
Montana State University	Missoula, Mont.	1893	Ernest O. Melby	81	953	209	744	3,870,400	869,240	616,397	255,382

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Monticello College	Alton, Ill.	1835	Dr. John R. Young	40	340	....	340	$1,000,000	$.....	$.....	24,000
Montreal, University of	Montreal, Quebec, Can.	1876	Mgr. O. Maurault	1,401	18,624	10,274	8,350	8,527,410	222,055	903,016	200,000
Montreat College	Montreat, N.C.	1916	Dr. R. C. Anderson	34	390	....	390	.....	.....	.....	12,006
Moravian College and Theological Seminary	Bethlehem, Pa.	1807	Raymond S. Haupert	11	50	50	....	527,922	537,104	100,748	27,000
Moravian Seminary and College for Women	Bethlehem, Pa.	1742	Edwin J. Heath	55	350	....	350	347,466	294,864	154,541	10,000
Morehead State Teachers College	Morehead, Ky.	1923	William H. Vaughan	55	758	105	653	2,650,000	.....	437,822	33,096
Morehouse College	Atlanta, Ga.	1867	Benjamin E. Mays	40	377	377	....	333,635	1,463,530	187,478	76,971
Morgan Park Junior College	Chicago, Ill.	1933	Albert G. Dodd	12	196	53	143	.....	5,000	.....	5,000
Morgan State College	Baltimore, Md.	1867	Dwight O. W. Holmes	33	568	118	450	1,334,914	.....	274,377	35,000
Morningside College	Sioux City, Iowa	1889	Earl A. Roadman	41	531	148	383	720,000	440,000	175,000	50,000
Morris Brown College	Atlanta, Ga.	1881	W. A. Fountain, Jr.	30	594	132	462	373,089	221,420	271,053	8,000
Morris Harvey College	Charleston, W.Va.	1888	Leonard Riggleman	36	1,112	257	855	149,853	300,000	76,012	12,000
Morristown Normal and Industrial College	Morristown, Tenn.	1881	Miller W. Boyd	14	177	49	128	500,000	52,000	60,000	9,000
Morton Junior College	Cicero, Ill.	1924	William P. MacLean	32	255	120	135	2,034,503	.....	2,030,220	16,000
Mount Allison University	Sackville, N.B., Can.	1839	George J. Trueman	52	471	231	240	1,417,634	1,310,548	51,000	51,000
Mount Angel College	St. Benedict, Oreg.	1887	Rev. Method Korn	17	28	28	....	300,000	80,000	.....	36,000
Mount Angel Normal School	Mount Angel, Oreg.	1887	Mother Mary U. Hodes	10	24	....	24	225,000	.....	.....	7,600
Mount Holyoke College	South Hadley, Mass.	1836	Roswell G. Ham	127	1,157	....	1,157	6,308,000	6,036,000	1,597,000	194,821
Mount Ida Inc. (Junior College for Young Women)	Newton Center, Mass.	(oo)1899	William Fitts Carlson	24	200	....	200	2,500,000	.....	150,000	7,000
Mount Mary College	Milwaukee, Wis.	1915	Edward A. Fitzpatrick	56	912	....	912	2,223,805	.....	.....	32,000
Mount St. Clare College	Clinton, Iowa	1918	Mother Mary J. McKeever	21	90	....	90	.....	.....	.....	10,230
Mount St. Joseph Junior College	Maple Mount, Ky.	1925	Mother M. Laurine Sheeran	17	106	....	106	.....	.....	.....	10,000
Mount St. Mary's College	Los Angeles, Calif.	1925	Sister Marie de Loardes	36	350	....	350	.....	.....	.....	.....
Mount Saint Mary's College	Emmitsburg, Md.	1805	Rt. Rev. John L. Sheridan	32	36	36	....	2,460,607	307,001	303,232	53,000
Mount St. Scholastica College	Atchison, Kans.	1863	Mother Lucy Dooley	35	325	....	325	1,350,000	.....	.....	25,000
Mount Saint Vincent, College of	New York, N.Y.	1847	Most Rev. Francis J. Spellman	56	510	....	510	2,660,570	250,646	310,274	28,000
Mount Union College	Alliance, Ohio	1846	Charles B. Ketcham	36	465	124	341	1,077,349	1,327,770	230,000	70,274
Muhlenberg College	Allentown, Pa.	1848	Levering Tyson	31	115	115	....	2,433,614	1,006,095	506,970	66,698
Multnomah College	Portland, Oreg.	1897	Edward L. Clark	13	190	123	67	450,000	25,500	76,978	6,385
Mundelein College	Chicago, Ill.	1929	Sister Mary Josephine	75	943	....	943	2,720,020	(q)	446,314	25,513
Municipal University of Wichita, The	Wichita, Kans.	1926	W. M. Jardine	57	930	301	629	1,846,957	95,372	439,500	73,000
Murray State Teachers College	Murray, Ky.	1923	James H. Richmond	82	430	80	350	2,500,000	(i)	680,867	36,236
Muscatine Junior College	Muscatine, Iowa	1929	Willetta Strahan	7	35	3	32	.....	.....	.....	2,500
Muskingum College	New Concord, Ohio	1837	Robert N. Montgomery	65	495	106	389	2,000,000	940,000	300,000	40,000
Muskogee Junior College	Muskogee, Okla.	1920	B. L. Wertz	11	42	21	21	(ff)	50	3,495	2,500
Nasson College	Springvale, Maine	1912	John T. Holden	15	105	....	105	200,000	20,000	60,000	7,500
National College of Education	Evanston, Ill.	1886	Edna D. Baker	47	358	....	358	997,890	133,778	341,900	30,582
National University	Manila, P.I.	1901	Domingo L. Jhocson(f)	....	....	....	....	500,000	.....	.....	12,000
National University	Washington, D.C.	1869	George P. Barse	39	154	90	64	.....	.....	.....	13,500
Nazareth College	Louisville, Ky.	1920	Sister Mary A. Coady	51	890	....	890	622,073	15,000	91,080	22,032
Nazareth College	Nazareth, Mich.	1897	Sister Mary Kevin	27	353	....	353	.....	.....	.....	25,000
Nebraska Central College	Central City, Nebr.	1899	Ora W. Carrell	5	43	10	33	110,000	50,000	.....	5,000
Nebraska State Teachers College	Chadron, Nebr.	1911	Wiley G. Brooks	43	127	13	114	1,500,000	.....	298,000	14,000
Nebraska State Teachers College	Kearney, Nebr.	1905	Herbert L. Cushing	44	267	47	220	1,145,828	.....	170,451	42,649
Nebraska State Teachers College	Wayne, Nebr.	1910	Dr. J. T. Anderson	49	743	140	603	1,245,560	.....	211,020	33,000
Nebraska, The University of	Lincoln, Nebr.	1869	Chauncey S. Boucher	340	3,621	1,393	2,228	15,000,000	40,000	6,000,000	417,000
Nebraska Wesleyan University	Lincoln, Nebr.	1887	Benjamin F. Schwartz	34	264	65	199	629,018	944,485	154,659	34,723
Nevada, University of	Reno, Nev.	1864	John O. Moseley	88	588	190	398	3,440,350	680,321	1,236,179	68,327
New Brunswick, University of	Fredericton, N.B., Can.	1800	Milton F. Gregg	35	400	325	75	1,445,255	240,000	112,000	30,000
New Hampshire, University of	Durham, N.H.	1866	Harold W. Stoke	143	1,256	337	919	5,737,160	1,354,943	1,951,600	133,358

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New Haven State Teachers College	New Haven, Conn.	1893	E. Ward Ireland[f]	100	[r]1,319	[r]123	[r]1,196	$150,000	$	$209,000	21,000
New Jersey State Teachers College	Glassboro, N.J.	1922	Edgar F. Bunce	30	200	4	196	1,250,000		190,000	20,000
New Jersey State Teachers College	Jersey City, N.J.	1929	Chris C. Rossey	39	550	4	546	1,190,000		[ee]	42,000
New Jersey State Teachers College	Montclair, N.J.	1908	Dr. Harry A. Sprague	59	673	65	608	1,500,000		400,000	50,000
New Jersey State Teachers College	Newark, N.J.	1913	John B. Dougall	35	349	8	341	667,000		[ee]254,853	39,842
New Jersey State Teachers College	Paterson, N.J.	1855	Clair S. Wightman	23	250	15	235	400,000		125,000	17,000
New Jersey State Teachers College	Trenton, N.J.	1855	Roscoe L. West	69	646	31	615	3,000,000		[ee]534,807	47,660
New Mexico, University of	Albuquerque, N.Mex.	1889		134	1,212	316	896	2,725,015	915,636	1,265,912	96,749
New Mexico College of Agriculture and Mechanic Arts	State College, N.Mex.	1862	John W. Branson[f]	67	414	138	276	1,578,395	448,261	[a]1,220,460	50,000
New Mexico Highlands University	Las Vegas, N.Mex.	1893	Edward Eyring	51	225	47	178	1,079,040	52,166	228,408	2,521
New Mexico Military Institute	Roswell, N.Mex.	1894	Daniel C. Pearson	39	598	598	....	2,000,000		477,680	23,000
New Mexico School of Mines	Socorro, N.Mex.	1889	R. H. Reece	15	16	16	....	800,000		93,000	15,000
New Mexico State Teachers College	Silver City, N.Mex.	1893	Haddon W. James	45	209	38	171	707,752			32,000
New Rochelle, College of	New Rochelle, N.Y.	1904	Rt. Rev. Mgr. Francis W. Walsh	59	866	....	866	2,853,879	100,000	417,037	52,566
New York, The College of the City of	New York, N.Y.	1847	Harry N. Wright	387	4,879	3,666	1,213	1,055,523	[ww]534,632	3,198,528	300,000
New York State College for Teachers	Albany, N.Y.	1844	John M. Sayles	98	1,028	81	947	1,510,500		501,425	34,332
New York State College of Forestry	Syracuse, N.Y.	1911	Joseph S. Illick	28	108	105	3	2,224,116		432,085	57,497
New York State Teachers College	Brockport, N.Y.	1866	Dr. Donald MacL. Tower	37	305	14	291	1,250,000		[ee]167,652	25,000
New York State Teachers College	Buffalo, N.Y.	1867	Harry W. Rockwell	83	1,016	65	951	2,200,000		353,365	32,865
New York State Teachers College	Cortland, N.Y.	1863	Donnal V. Smith	60	500	30	470	1,250,000			30,000
New York State Teachers College	Fredonia, N.Y.	1866	Leslie R. Gregory	42	298	20	278	445,000		196,665	17,184
New York State Teachers College	Geneseo, N.Y.	1867	James B. Welles	32	350	1	349	1,025,000		217,090	35,000
New York State Teachers College	New Platz, N.Y.	1886	Wm. James Haggerty	42	370	10	360		985,000	195,798	15,000
New York State Teachers College	Oswego, N.Y.	1861	Ralph W. Swetman	37	362	68	294	1,237,000		208,125	27,296
New York State Teachers College	Plattsburgh, N.Y.	1889	Dr. Charles C. Ward	47	506	11	495	1,200,000		[l]	17,960
New York State Teachers College	Potsdam, N.Y.	1866	Dr. Clarence O. Lehman	46	449	20	429	1,100,000		[a]232,297	15,700
New York University	New York, N.Y.	1831	Harry W. Chase	[a]1,925	32,118	15,142	16,976	15,350,714	9,765,833	[a]9,630,548	[a]668,795
Newark, University of	Newark, N.J.	1933	Dr. George H. Black	42	793	344	449	326,153	102,300	127,789	31,324
Newark College of Engineering	Newark, N.J.	1881	Allan R. Cullimore	64	661	643	18	989,190	95,600	599,100	19,264
Newberry College	Newberry, S.C.	1856	James C. Kinard	35	146	42	104	482,223	330,000	250,000	.....
Norman Junior College	Norman Park, Ga.	1900	Wm. T. Bodenhamer	17	64	17	47	122,167	155,500	50,000	1,500
North Carolina, Agricultural and Technical College	Greensboro, N.C.	1891	Ferdinand D. Bluford	78	940	364	576	2,000,000		396,000	33,000
North Carolina, University of	Chapel Hill, N.C.	1789	Frank P. Graham	378	1,800	1,000	800	14,000,000	3,045,178	[ll]6,638,000	450,000
North Carolina State College of Agriculture and Engineering	Raleigh, N. C.	1887	John W. Harrelson	194	956	887	69	7,000,000		1,956,184	73,343
North Central College	Naperville, Ill.	1861	Edward E. Rall	35	410	124	286	1,380,000	1,200,000	173,255	32,000
North Dakota, University of	Grand Forks, N. Dak.	1883	John C. West	115	866	245	621	3,300,000	1,700,000	571,821	147,000
North Dakota Agricultural College	Fargo, N. Dak.	1890	Frank L. Eversull	104	550	153	397	3,443,227	1,573,103	480,000	67,000
North Dakota School of Forestry	Bottineau, N. Dak.	1889	Clarence N. Nelson	7	60	10	50	165,000		9,500	5,000
North Dakota State Normal and Industrial School	Ellendale, N. Dak.	1889	John C. McMillan	24	194	40	154	395,000	[jj]40,000	106,000	19,000
North Dakota State Teachers College	Dickinson, N. Dak.	1917	Charles E. Scott	28	44	2	42	666,000			15,000
North Dakota State Teachers College	Mayville, N. Dak.	1889	Dr. John W. Headley	24	87	17	70	750,000		116,875	21,000
North Dakota State Teachers College	Minot, N. Dak.	1913	Carl C. Swain	50	300	20	280	1,000,000		185,000	30,000
North Dakota State Teachers College	Valley City, N. Dak.	1889	Eugene H. Kleinpell	40	228	36	192	1,000,000	668,000	24,000	38,050
North Georgia College	Dahlonega, Ga.	1873	Jonathan C. Rogers	35	423	305	118	760,000		385,000	12,000
North Greenville Baptist Academy and Junior College	Tigerville, S.C.	1892	Murphree C. Donnan	15	151	98	53	115,198	30,000		5,000
North Idaho Junior College	Coeur d'Alene, Idaho	1932	George O. Kildow	10	101	8	93	100,000		35,000	8,000
North Park College	Chicago, Ill.	1891	Algoth Ohlson	76	841	231	610	517,407	309,082	20,800	15,000
North Texas Agricultural College	Arlington, Texas	1917	Edward E. Davis	53	1,041	725	316	1,332,792		300,159	22,690
North Texas State Teachers College	Denton, Texas	1890	W. Joseph McConnell	150	1,901	338	1,563	3,453,111		1,200,000	153,750

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Northeast Missouri State Teachers College	Kirksville, Mo.	1867	Walter H. Ryle	51	1,609	....	....	$2,250,000	$.....	$278,062	71,649
Northeastern Oklahoma A. and M. College	Miami, Okla.	1919	Bruce G. Carter	10	231	85	146	400,000	.....	50,000	6,500
Northeastern State College	Tahlequah, Okla.	1889	John Vaughan	35	328	82	246	895,970	.....	137,676	40,111
Northeastern University	Boston, Mass.	1898	Carl S. Ell	163	2,355	2,075	280	2,391,432	1,004,212	852,532	39,518
Northern Illinois State Teachers College	De Kalb, Ill.	1895	Karl L. Adams	65	555	105	450	1,857,291	.....	512,024	55,814
Northern Michigan College of Education	Marquette, Mich.	1899	H. A. Tape	61	252	31	221	819,040	20,000	258,000	39,355
Northern Montana College	Havre, Mont.	1929	G. H. Vande Bogart	13	132	30	102	375,000	.....	108,881	18,000
Northern Oklahoma Junior College	Tonkawa, Okla.	1901	Loren N. Brown	22	128	31	97	740,902	.....	54,445	8,192
Northern State Teachers College	Aberdeen, S. Dak.	1901	Noah E. Steele	39	219	41	178	1,250,000	.....	212,500	28,285
Northland College	Ashland, Wis.	1892	Manley E. MacDonald	14	61	11	50	339,469	93,601	48,645	12,000
Northwest Missouri State Teachers College	Maryville, Mo.	1906	Uel W. Lamkin	60	1,000	100	900	2,000,000	.....	300,000	35,000
Northwest Nazarene College	Nampa, Idaho	1913	Lewis T. Corlett	32	479	146	333	352,109	.....	159,418	12,000
Northwestern College	Watertown, Wis.	1864	Erwin E. Kowalke	17	77	71	6	453,500	84,147	.....	22,345
Northwestern Junior College and Academy	Orange City, Iowa	1882	Jacob Heemstra	13	35	13	22	135,000	41,300	36,976	4,500
Northwestern State College	Alva, Okla.	1897	Sabin C. Percefull	29	204	40	164	905,384	.....	158,912	22,654
Northwestern University	Evanston, Ill.	1851	Franklyn B. Snyder	1,330	12,617	4,707	7,910	28,107,877	50,501,000	8,951,000	740,000
Norwich University	Northfield, Vt.	1819	Homer L. Dodge	35	115	115	....	1,036,608	1,049,140	393,779	38,413
Notre Dame, University of	Notre Dame, Ind.	1842	Rev. J. Hugh O'Donnell	288	2,794	2,794	....	.....	.....	.....	213,000
Notre Dame College	Montreal, Can.	1869	Br. Hilaire	50	25	25	....	1,000,000	.....	150,000	3,000
Notre Dame College	South Euclid, Ohio	1922	Mother Mary V. Niess	31	220	....	220	.....	.....	.....	22,758
Notre Dame College of Staten Island	Staten Island, N.Y.	1931	Mother Saint Agnes	26	245	....	245	.....	.....	.....	8,900
Notre Dame of Maryland, College of	Baltimore, Md.	1873	Sister Mary Frances	46	415	....	(a)415	1,691,018	47,757	190,195	25,000
Nova Scotia Agricultural College	Truro, N.S., Can.	1885	Charles E. Boulden	17	53	52	1	300,000	.....	.....	5,500
Nova Scotia Technical College	Halifax, N.S., Can.	1908	Frederic H. Sexton	14	82	82	....	600,000	.....	44,000	100,000
Oakland City College	Oakland City, Ind.	1885	James E. Cox	9	47	24	23	161,891	132,433	32,873	11,704
Oakwood College	Huntsville, Ala.	1896	James L. Moran	20	163	42	121	275,000	.....	180,000	9,100
Oberlin College	Oberlin, Ohio	1833	Ernest H. Wilkins	189	1,350	274	1,076	6,033,040	23,138,115	1,706,936	449,654
Occidental College	Los Angeles, Calif.	1887	Remsen D. Bird	....	637	110	527	.....	1,258,543	838,684	74,980
Oceanside-Carlsbad Junior College	Oceanside, Calif.	1934	Donald C. Carr	21	114	36	78	500,000	100	145,000	5,200
Oglethorpe University	Atlanta, Ga.	1835	Philip Wellner	11	135	10	125	1,100,000	.....	149,000	53,000
Ogontz Junior College	Rydal, Pa.	1850	Abby A. Sutherland	27	196	....	196	1,250,000	350,000	178,555	12,000
Ohio State University, The	Columbus, Ohio	1870	Howard L. Bevis	1,304	9,688	4,055	5,633	29,433,787	2,036,957	12,842,077	685,255
Ohio University	Athens, Ohio	1804	John C. Baker	192	1,478	251	1,227	5,560,000	97,205	1,761,183	149,936
Ohio Wesleyan University	Delaware, Ohio	1842	Herbert J. Burgstahler	85	1,022	107	915	2,924,828	3,831,000	898,349	170,000
Oklahoma, University of	Norman, Okla.	1890	George L. Cross	272	3,132	1,182	1,950	8,107,023	4,085,903	4,136,488	250,000
Oklahoma Agricultural and Mechanical College	Stillwell, Okla.	1890	Dr. Henry G. Bennett	290	1,899	662	1,237	8,275,404	5,933,545	6,164,555	162,000
Oklahoma Baptist University	Shawnee, Okla.	1910	Dr. John W. Raley	35	500	160	340	1,000,000	40,000	250,000	30,000
Oklahoma College for Women	Chickasha, Okla.	1908	Charles D. Procter	60	744	....	744	1,691,009	.....	367,124	33,199
Okmulgee Junior College	Okmulgee, Okla.	1928	W. Max Chambers	7	88	37	51	50,000	.....	12,000	3,500
Olivet College	Olivet, Mich.	1844	Malcolm B. Dana	24	180	30	150	1,000,000	250,000	165,000	45,000
Olivet Nazarene College	Kankakee, Ill.	1907	Alonzo L. Parrott	24	529	146	383	1,022,527	.....	236,348	10,000
Omaha, The Municipal University of	Omaha, Nebr.	1908	Rowland Haynes	44	887	248	639	1,208,647	131,650	348,000	80,000
Ontario Agricultural College	Guelph, Ontario, Can.	1874	George I. Christie	100	246	236	10	.....	.....	.....	47,250
Ontario College of Pharmacy	Toronto, Ontario, Can.	1871	Harold V. Mercer	....	114	76	38	.....	.....	.....	2,100
Ontario Ladies' College	Whitby, Ontario, Can.	1874	Rev. C. R. Carscallen	20	120	....	120	333,500	.....	86,000	3,765
Ontario Veterinary College	Guelph, Ontario, Can.	1862	Andrew L. MacNabb	23	119	108	11	500,000	.....	98,000	2,200
Oregon, University of	Eugene, Oreg.	1872	Dr. Harry K. Newburn	190	2,245	574	1,671	7,303,090	857,238	1,250,000	355,837
Oregon College of Education	Monmouth, Oreg.	1856	Dr. C. A. Howard	33	144	7	137	918,393	(1)	128,058	30,302

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Oregon State College	Corvallis, Oreg.	1868	August L. Strand	331	2,349	635	1,714	$9,753,310	$265,672	[a]$3,931,872	207,826
Ottawa, University of	Ottawa, Ontario, Can.	1848	Very Rev. P. Cornellier	234	3,237	2,449	788	2,150,000	136,000	558,000	135,450
Otterbein College	Westerville, Ohio	1847	R. F. Martin[f]	44	377	121	256	875,368	1,208,084	217,241	35,000
Ottumwa Heights College	Ottumwa, Iowa	1925	Mother Mary G. Upham	21	230	....	230	.....	.....	.....	10,000
Ouachita College	Arkadelphia, Ark.	1886	James R. Grant	28	475	189	286	1,000,000	500,000	250,000	30,000
Our Lady of Cincinnati College	Edgecliff, Cincinnati, Ohio	1935	Sister Marie Pierre	35	247	....	247	.....	.....	.....	13,000
Our Lady of Victory College	Fort Worth, Texas	1930	Sister Mary Albertine	18	78	....	78	550,000	.....	50,000	10,850
Ozarks, The College of the	Clarksville, Ark.	1891	Wiley L. Hurie	25	136	35	101	700,000	395,026	9,509	22,000
Pacific, College of the	Stockton, Calif.	1851	Tully C. Knoles	57	513	111	403	1,080,562	570,880	527,804	47,800
Pacific College	Newberg, Oreg.	1891	Emmett W. Gulley	14	100	41	59	400,000	300,000	35,000	11,500
Pacific Lutheran College	Parkland, Wash.	1894	Seth C. Eastvold	22	223	39	184	340,795	68,625	117,856	25,000
Pacific Union College	Angwin, Calif.	1909	Henry J. Klooster	52	538	235	303	552,932	.....	741,993	30,173
Pacific University	Forest Grove, Oreg.	1849	Walter C. Giersbach	34	188	30	158	504,844	282,111	143,835	32,000
Packer Collegiate Institute, The	Brooklyn, N.Y.	1845	Paul D. Shafer	27	97	....	97	602,187	1,283,072	186,009	12,295
Paine College	Augusta, Ga.	1882	Edmund C. Peters	16	341	45	296	436,351	37,956	104,524	19,704
Palm Beach Junior College	West Palm Beach, Fla.	1933	Dr. John I. Leonard	18	135	25	110	2,102,000	.....	.....	4,700
Panhandle Agricultural and Mechanical College	Goodwell, Okla.	1909	Marvin E. McKee	30	200	27	173	750,000	.....	150,000	11,233
Paola, College of	Paola, Kans.	1924	Mother Mary C. Koehler	14	39	....	39	750,000	.....	70,000	7,025
Paris Junior College	Paris, Texas	1924	J. R. McLemore	19	362	214	148	750,000	.....	55,000	7,648
Park College	Parkville, Mo.	1875	George I. Rohrbough	45	370	75	295	1,680,682	1,470,517	500,000	35,000
Parsons College	Fairfield, Iowa	1875	Herbert C. Mayer	24	141	32	109	574,627	547,045	128,876	24,232
Parsons Junior College	Parsons, Kans.	1923	E. F. Farner	24	126	40	86	500,000	.....	.....	11,450
Pasadena College	Pasadena, Calif.	1902	H. Orton Wiley	24	428	167	261	320,948	30,662	.....	.....
Peace College	Raleigh, N.C.	1857	William C. Pressly	30	312	....	312	400,000	200,000	137,000	10,000
Pearl River Junior College	Poplarville, Miss.	1922	R. D. McLendon	25	424	231	193	500,000	.....	72,133	6,000
Pembroke State College for Indians	Pembroke, N.C.	1887	Ralph D. Wellons	16	81	20	61	231,233	.....	53,115	9,000
Penn Hall Junior College and Preparatory School	Chambersburg, Pa.	1906	Frank S. Magill	30	275	....	275	1,500,000	.....	.....	8,500
Pennsylvania, University of	Philadelphia, Pa.	1740	George W. McClelland	1,253	2,884	1,661	1,223	36,045,205	23,605,900	11,532,881	997,929
Pennsylvania College for Women	Pittsburgh, Pa.	1869	Dr. Herbert L. Spencer	48	360	....	360	1,738,500	632,550	157,570	28,092
Pennsylvania Military College	Chester, Pa.	1821	Frank K. Hyatt	23	40	40	....	600,000	.....	.....	8,000
Pennsylvania State College, The	State College, Pa.	1855	Ralph D. Hertzel	713	3,434	1,252	2,182	22,171,141	517,000	10,161,925	229,321
Pennsylvania State Teachers College	Bloomsburg, Pa.	1839	Harvey A. Andruss	30	195	27	168	2,178,700	.....	390,827	26,562
Pennsylvania State Teachers College	California, Pa.	1852	Robert McC. Steele	30	197	56	141	1,858,600	.....	83,800	24,140
Pennsylvania State Teachers College	Clarion, Pa.	1867	Paul G. Chandler	25	140	20	120	1,760,000	.....	258,971	19,807
Pennsylvania State Teachers College	East Stroudsburg, Pa.	1893	Joseph F. Noonan	35	267	40	227	1,362,030	.....	105,741	26,000
Pennsylvania State Teachers College	Edinboro, Pa.	1856	Lyman H. Van Houten	27	225	12	213	1,004,662	.....	186,526	21,636
Pennsylvania State Teachers College	Indiana, Pa.	1871	Joseph M. Uhler	75	832	796	36	3,929,413	.....	565,000	25,442
Pennsylvania State Teachers College	Kutztown, Pa.	1866	Quincy A. W. Rohrbach	29	262	31	231	2,197,046	.....	303,510	27,843
Pennsylvania State Teachers College	Lock Haven, Pa.	1877	Richard T. Parsons	25	180	25	155	1,500,000	[i]	150,000	17,000
Pennsylvania State Teachers College	Mansfield, Pa.	1854	James G. Morgan	45	260	20	240	3,000,000	.....	210,000	30,000
Pennsylvania State Teachers College	Millersville, Pa.	1855	Daniel L. Biemesderfer	39	196	31	165	1,818,817	.....	252,615	30,089
Pennsylvania State Teachers College	Shippensburg, Pa.	1871	Dr. Raymond G. Mowrey[f]	27	192	21	171	2,164,159	.....	204,076	26,000
Pennsylvania State Teachers College	Slippery Rock, Pa.	1889	John A. Entz	44	287	27	260	2,244,946	.....	140,458	20,000
Pennsylvania State Teachers College	West Chester, Pa.	1869	Charles S. Swope	65	758	58	700	3,500,000	.....	582,955	34,000
Perkinston Junior College	Perkinston, Miss.	1911	Albert L. May	25	225	100	125	500,000	.....	75,000	6,000
Peru State Teachers College	Peru, Nebr.	1867	Walter R. Pate	52	144	17	127	1,410,228	.....	187,929	52,000
Pestalozzi Froebel Teachers College	Chicago, Ill.	1896	Herman H. Hegner	32	226	1	225	.....	.....	.....	6,460
Pfeiffer Junior College	Misenheimer, N.C.	1903	Chi M. Waggoner	16	174	26	148	1,000,000	500,000	75,000	7,250
Philippines, University of the	Manila, P.I.	1908	Bienvenido M. Gonzalez	[e]213	[e]1,951	1,169	782	[kk]7,400,556	.....	[kk]2,258,167	[kk]188,878
Phillips University	Enid, Okla.	1907	Eugene S. Briggs	42	754	192	562	531,615	760,596	283,821	40,000
Phoenix Junior College	Phoenix, Ariz.	1920	Emery W. Montgomery	22	460	153	307	750,000	.....	89,533	16,220
Pickering College	Newmarket, Ontario, Can.	1842	Joseph McCulley	18	140	140	....	.....	.....	.....	4,000
Piedmont College	Demorest, Ga.	1897	Albert R. Van Cleave	18	93	24	69	145,060	138,892	71,024	.....

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Pikeville College	Pikeville, Ky.	1889	Auguston A. Page	22	146	22	124	$646,120	$302,029	$57,465	10,000
Pine Hill Divinity Hall	Halifax, N.S., Can.	1820	.....	8	37	37	....	160,000	418,000	83,000	20,000
Pine Manor Junior College	Wellesley, Mass.	1911	Marie W. Potter	63	245	....	245	770,000	.....	375,000	6,250
Pittsburgh, University of	Pittsburgh, Pa.	1787	John G. Bowman	559	7,536	2,865	4,671	20,368,920	3,439,031	3,900,992	450,000
Placer Junior College	Auburn, Calif.	1936	Harold E. Chastain	20	225	143	82	200,000	.....	50,000	4,000
Plymouth Teachers College	Plymouth, N.H.	1870	Ernest L. Silver	30	125	7	118	500,000	.....	117,000	18,000
Polytechnic Institute of Puerto Rico	San Germán, Puerto Rico.	1912	Jarvis S. Morris	25	305	154	151	750,000	400,000	250,000	13,000
Pomona College	Claremont, Calif.	1887	E. Wilson Lyon	62	575	96	479	3,293,476	3,863,241	616,973	113,000
Pomona Junior College	Pomona, Calif.	1916	Winston Nelson	41	925	400	525	668,782	.....	.....	13,000
Port Huron Junior College	Port Huron, Mich.	1923	John H. McKenzie	11	206	87	119	228,850	.....	37,515	5,930
Portland, University of	Portland, Oreg.	1901	Rev. Charles C. Mutner	30	255	90	165	557,000	.....	.....	24,000
Potomac State School of West Virginia University	Keyser, W.Va.	1901	Ernest E. Church	19	189	48	141	542,750	(1)	91,800	9,000
Prairie View State College	Prairie View, Texas	1873	Willette R. Banks	93	1,426	393	1,033	2,292,016	30,000	.....	25,375
Pratt Institute	Brooklyn, N.Y.	1887	Charles Pratt	86	2,514	896	1,618	2,418,000	9,228,000	318,000	145,777
Pratt Junior College	Pratt, Kans.	1937	Amos W. Glad	8	30	3	27	315,000	.....	21,295	3,055
Presbyterian College	Clinton, S.C.	1880	Marshall W. Brown	15	176	131	45	816,674	222,000	107,000	25,000
Presbyterian College of Christian Education	Chicago, Ill.	1908	Rev. J. Harry Cotton	5	24	....	24	44,856	8,317	42,455	4,969
Presbyterian Junior College	Maxton, N.C.	1929	Louis C. La Motte	7	52	37	15	181,129	35,000	(a)46,407	7,000
Prince of Wales' College	Charlottetown, P.E.I., Can.	1860	George D. Steel	25	471	149	322	385,000	88,450	46,886	4,377
Princeton Theological Seminary	Princeton, N.J.	1812	John A. Mackay	26	250	235	15	1,312,470	3,990,758	371,853	161,346
Princeton University	Princeton, N.J.	1746	Harold W. Dodds	255	615	615	....	.....	39,137,467	5,619,194	1,000,000
Principia College of Liberal Arts, The	Elsah, Ill.	1932	Frederic E. Morgan	29	280	51	229	3,187,892	732,505	(a)218,333	32,546
Providence College	Providence, R.I.	1917	Frederick C. Foley	65	182	182	....	3,500,000	95,000	86,000	36,500
Provincial Institute of Technology and Art	Calgary, Alberta, Can.	1916	James Fowler	26	288	218	70	1,300,000	.....	63,489	2,865
Provincial School of Agriculture	Olds, Alberta, Can.	1913	James Murray	18	200	125	75	390,000	.....	45,000	3,000
Pueblo Junior College	Pueblo, Colo.	1933	William A. Black	17	179	56	123	780,000	.....	180,000	7,100
Pudget Sound, College of	Tacoma, Wash.	1888	Robert F. Thompson	35	406	104	302	976,113	1,200,000	195,000	43,500
Purdue University	Lafayette, Ind.	1869	Edward C. Elliott	580	4,091	2,256	1,835	19,000,000	340,000	9,650,000	215,000
Queens College	Flushing, N.Y.	1937	Paul Klapper	159	1,923	315	1,608	2,369,270	.....	984,000	65,000
Queens College	Charlotte, N.C.	1857	Hunter B. Blakely	....	425	....	425	893,000	400,000	270,000	21,000
Queen's University	Kingston, Ontario, Can.	1841	Robert C. Wallace	275	1,504	1,125	379	4,939,873	4,320,000	829,698	211,357
Quincy College	Quincy, Ill.	1860	Rev. Seraphin Tibesar	21	241	38	203	100,000	.....	.....	18,600
Radcliffe College	Cambridge, Mass.	1879	Wilbur K. Jordan	....	1,157	....	1,157	3,338,402	5,684,106	617,800	95,000
Radford College(u)	Radford, Va.	1910	Dr. David W. Peters	46	483	....	483	140,000	.....	309,048	29,450
Randolph-Macon College	Ashland, Va.	1830	Jesse E. Moreland	16	99	80	19	588,570	992,931	.....	39,242
Randolph-Macon Woman's College	Lynchburg, Va.	1893	Theodore H. Jack	72	694	...	694	2,128,869	1,259,530	691,510	62,000
Ranger Public Junior College	Ranger, Texas	1926	Dr. Grover C. Boswell	14	144	34	110	500,000	.....	13,300	7,280
Redlands, University of	Redlands, Calif.	1909	George H. Armacost	65	583	110	473	2,076,236	2,649,464	853,000	75,634
Reed College	Portland, Oreg.	1911	Dr. Peter H. Odegard	35	396	128	268	1,229,214	1,612,317	180,274	80,039
Reedley Junior College	Reedley, Calif.	1926	Dr. J. O. McLaughlin	27	163	38	125	850,000	.....	.....	9,000
Reformed Presbyterian Theological Seminary	Pittsburgh, Pa.	1810	Rcbert J. G. McKnight	4	....	....	....	100,000	75,000	.....	5,000
Regina College	Regina, Saskatchewan, Can.	1910	James S. Thomson	12	215	91	124	1,000,000	.....	.....	10,800
Regis College	Denver, Colo.	1888	Very Rev. J. J. Flanagan	15	66	66	....	618,672	51,200	98,910	45,000
Reinhardt College	Waleska, Ga.	1883	James R. Burgess, Jr.	10	114	38	76	275,000	.....	31,000	5,000
Rensselaer Polytechnic Institute	Troy, N.Y.	1824	Livingston W. Houston	115	253	231	22	7,257,700	8,900,300	1,601,311	38,560
Rhode Island College of Education	Providence, R.I.	1854	Lucius A. Whipple	53	284	4	280	1,670,201	.....	262,613	26,089
Rhode Island State College	Kingston, R.I.	1892	Carl R. Woodward	125	461	104	357	5,189,297	.....	1,363,282	76,402
Rice Institute	Houston, Texas	1912	Edgar O. Lovett	73	576	235	341	4,993,000	18,700,000	725,000	174,500
Richmond, University of	Richmond, Va.	1932	Frederic W. Boatwright	75	806	427	379	2,840,000	2,936,316	623,001	100,000
Ricker Junior College	Houlton, Maine	1926	Roy M. Hayes	12	28	14	14	83,598	42,961	44,839	.....

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Ricks College	Rexburg, Idaho	1888	John L. Clarke	18	170	28	142	$249,196	$.....	$73,258	6,547
Rider College	Trenton, N.J.	1865	Dr. Franklin F. Moore	39	921	126	795	625,000	175,000	110,000	14,998
Rio Grande College	Rio Grande, Ohio	1876	F. W. McDermott	9	35	8	27	.....	70,000	.....	9,000
Ripon College	Ripon, Wis.	1850	Clark G. Kuebler	33	199	33	166	1,063,804	914,382	276,976	42,418
Riverside College	Riverside, Calif.	1916	Arthur G. Paul	30	189	62	127	500,000	.....	159,839	17,719
Rivier College	Nashua, N.H.	1933	Sister Marie M. Getty	28	128	....	128	.....	.....	.....	17,632
Roanoke College	Salem, Va.	1842	Charles J. Smith	30	300	100	200	800,000	676,000	157,400	23,992
Rochester Junior College	Rochester, Minn.	1915	Roy W. Goddard	16	119	29	90	.....	.....	.....	5,500
Rochester, The University of	Rochester, N.Y.	1850	Alan Valentine	626	4,806	1,777	3,029	29,816,629	53,256,317	4,552,267	436,703
Rockford College	Rockford, Ill.	1847	Mary A. Cheek	42	321	....	321	792,700	991,185	268,450	34,000
Rockhurst College	Kansas City, Mo.	1910	William H. McCabe	20	420	390	30	868,000	1,316,000	137,000	22,000
Rosary College	River Forest, Ill.	1901	Sister Mary Peter	66	724	2	722	3,160,630	100,471	136,020	51,000
Rose Polytechnic Institute	Terre Haute, Ind.	1874	Donald B. Prentice	22	128	128	....	600,000	2,000,000	[a]307,700	23,000
Rosemont College	Rosemont, Pa.	1921	Mother Mary Cleophas	45	287	....	287	1,200,000	.....	.....	34,292
Russell Sage College	Troy, N.Y.	1916	Helen McKinstry	86	627	....	627	1,324,998	1,027,118	554,059	42,941
Rutgers University	New Brunswick, N.J.	1766	Robert C. Clothier	400	5,425	3,035	2,390	15,900,000	3,650,000	2,162,000	367,640
Sacramento College	Sacramento, Calif.	1916	Nicholas Ricciardi	50	1,448	401	1,047	1,662,429	.....	.....	25,750
Sacred Heart, College of the	Grand Coteau, La.	1821	Mother Marjory Erskine	15	75	....	75	250,210	.....	82,821	8,000
Sacred Heart University	Bathurst, N.B., Can.	1899	Jules Comeau	32	361	361	....	800,000	.....	.....	15,000
St. Ambrose College	Davenport, Iowa	1882	Rt. Rev. Mgr. A. J. Burke	50	191	191	....	1,250,000	740,000	200,000	25,000
St. Andrew's College	Saskatoon, Saskatchewan, Can.	1912	Rev. David S. Dix	4	24	20	4	191,500	7,700	35,500	3,000
St. Anne's College	Church Point, N.S., Can.	1890	Rev. Wilfrid Haché	16	190	190	....	300,000	.....	.....	8,100
St. Anselm's College	Manchester, N.H.	1889	Rt. Rev. Bertrand C. Dolan	28	....	....	....	.....	.....	.....	.....
St. Augustine's College	Raleigh, N.C.	1867	Rev. Edgar H. Goold	18	224	39	185	500,000	200,000	110,000	16,640
St. Benedict, College of	St. Joseph, Minn.	1913	Mother R. Pratschner	37	212	....	212	666,314	[11]75,800	37,591	27,000
St. Benedict's College	Atchison, Kans.	1858	Cuthbert McDonald	22	113	113	....	.....	.....	.....	90,000
St. Bonaventure College	St. Bonaventure, N.Y.	1859	Rev. Thomas Plassmann	55	168	129	39	1,453,008	.....	488,443	67,200
St. Catherine, College of	St. Paul, Minn.	1911	Sister Antonius Kennelly	70	706	....	706	2,501,834	616,250	.....	62,179
St. Charles College	Cantonville, Md.	1830	Very Rev. George A. Gleason	12	169	169	....	.....	.....	.....	40,000
St. Dunstan's College	Charlottetown, P.E.I., Can.	1844	Rev. Raymond V. MacKenzie	15	196	196	....	450,000	.....	.....	8,200
St. Edward's Seminary	Kenmore, Seattle, Wash.	1931	Very Rev. John P. McCormick	17	86	86	....	450,000	.....	.....	15,000
St. Elizabeth, College of	Convent Station, N.J.	1899	Sister Marie J. Byrne	50	521	....	521	2,250,000	.....	285,000	26,000
St. Francis, College of	Joliet, Ill.	1874	Sister Mary Aniceta	38	315	....	315	1,829,000	16,000	164,308	24,000
St. Francis College	Brooklyn, N.Y.	1884	Very Rev. Br. Columba	10	102	102	....	545,222	735,000	21,445	12,700
St. Francis College	Fort Wayne, Ind.	1890	Rev. Mother Mary B. Malin	26	180	....	180	.....	.....	.....	.....
St. Francis Xavier University	Antigonish, N.S., Can.	1853	Patrick J. Nicholson	27	514	421	93	960,000	558,000	202,040	35,000
St. Genevieve-of-the-Pines Junior College	Asheville, N.C.	1907	Rev. Mother L. F. Jannin	11	70	....	70	240,000	343,000	.....	7,300
St. Helen's Hall Junior College	Portland, Oreg.	1869	Gertrude H. Fariss	12	108	....	108	.....	.....	.....	5,250
St. Jerome's College	Kitchener, Ontario, Can.	1864	Rev. F. Michael Weiler	14	284	284	....	395,000	48,000	96,000	8,970
St. John's College	Winfield, Kans.	1893	Carl S. Mundinger	15	131	54	77	500,000	20,000	80,000	12,500
St. John's College	Annapolis, Md.	1784	Stringfellow Barr	22	173	173	....	1,043,225	221,563	306,000	40,256
St. John's University	Collegeville, Minn.	1857	Right Rev. Alcuin Deutsch	35	190	190	....	3,069,000	200,000	107,666	75,000
St. John's University	Brooklyn, N.Y.	1870	Very Rev. W. J. Mahoney	104	2,679	1,246	1,433	.....	.....	.....	.....
St. Joseph College	West Hartford, Conn.	1932	Rev. Mother Maria F. Burnett	35	348	....	348	.....	.....	.....	17,000
St. Joseph Junior College	St. Joseph, Mo.	1915	Nelle Blum	18	292	77	215	339,536	.....	41,109	7,200
St. Joseph's College	Collegeville, Ind.	1889	Very Rev. Henry A. Lucks	18	84	84	....	1,337,700	199,770	292,350	28,000
St. Joseph's College	Philadelphia, Pa.	1851	Very Rev. John J. Long	36	112	112	....	1,293,328	.....	.....	12,191
St. Joseph's College for Women	Brooklyn, N.Y.	1916	Most Rev. Thomas E. Molloy	42	454	....	454	846,801	22,017	129,681	20,347
St. Joseph's University	St. Joseph Province of N.B., Can.	1864	Hector Léger	55	526	526	....	710,306	.....	.....	22,000
St. Lawrence College	Mt. Calvary, Wis.	1860	Rev. Gerald Walker	14	186	186	....	.....	.....	.....	10,500

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St. Lawrence University	Canton, N.Y.	1856	Harold E. B. Speight[f]	66	339	44	295	$2,821,129	$1,580,351	$285,647	82,000
St. Louis University	St. Louis, Mo.	1818	Very Rev. P. J. Holloran	717	4,828	1,854	2,974	6,828,758	8,468,556	1,913,800	459,320
St. Martin's College	Lacey, Wash.	1895	Rt. Rev. Raphael Heider	16	20	20	....	800,000	55,000	.....	15,000
St. Mary, College of	Omaha, Nebr.	1923	Mother Mary Gerard	20	185	....	185	.....	.....	.....	10,000
St. Mary College, The	Xavier, Kans.	1923	Arthur M. Murphy	41	320	....	320	.....	.....	.....	31,000
St. Mary-of-the-Woods College	St. Mary-of-the-Woods, Ind.	1840	Mother Mary Bernard	42	305	....	305	.....	461,501	.....	63,240
St. Mary's College, University of	Halifax, N.S., Can.	1841	Francis C. Smith	18	308	308	....	.....	25,650	43,240	7,013
St. Mary's College	St. Mary's, Calif.	1863	Brother Austin	23	237	237	....	2,000,000	.....	159,573	37,000
St. Mary's College	St. Mary, Ky.	1821	Rev. Albert A. Ruetz	13	216	216	....	.....	.....	.....	4,000
St. Mary's College	Winona, Minn.	1913	Brother Joel	36	141	141	....	1,350,000	[q]	343,000	25,000
St. Mary's College, Notre Dame	Holy Cross, Ind.	1844	Sister M. Madeleva	56	542	....	542	2,429,804	141,000	463,900	33,351
St. Mary's Dominican College	New Orleans, La.	1910	Sister M. John	22	204	....	204	500,000	15,000	450	10,000
St. Mary's Seminary and University	Baltimore, Md.	1791	Very Rev. John J. Lardner	30	476	476	....	.....	.....	.....	68,000
St. Michael's College	Winooski Park, Vt.	1904	Very Rev. James H. Petty	21	51	51	....	462,925	32,439	61,898	30,000
St. Norbert College	West De Pere, Wis.	1898	Rt. Rev. B. H. Pennings	16	72	72	....	.....	.....	.....	.....
St. Olaf College	Northfield, Minn.	1874	Clemens M. Granskou	65	789	107	682	2,201,845	1,012,022	350,502	60,800
St. Patrick's College	Ottawa, Ontario, Can.	1929	Rev. L. K. Poupore	28	750	720	30	800,000	.....	70,000	20,000
St. Paul's College	Winnipeg, Manitoba, Can.	1931	Rev. Joseph Monaghan	18	355	355	....	.....	.....	.....	7,000
St. Paul's College	Concordia, Mo.	1884	Albert J. C. Moeller	8	110	110	....	300,000	.....	.....	11,000
St. Paul's Polytechnic Institute	Lawrenceville, Va.	1888	Dr. J. Alvin Russell	65	1,087	338	749	597,051	162,959	117,929	8,281
St. Peter's College	Jersey City, N.J.	1872	Rev. Vincent J. Hart	28	286	106	180	1,125,000	40,000	150,000	20,100
St. Petersburg Junior College	St. Petersburg, Fla.	1927	Roland A. Wakefield	18	133	83	50	250,000	.....	45,000	10,000
St. Procopius College	Lisle, Ill.	1887	Rt. Rev. Procopius Neuzill	17	65	65	....	3,000,000	.....	.....	35,000
St. Rose, College of	Albany, N.Y.	1920	Most Rev. Edmund F. Gibbon	47	366	....	366	2,198,419	[q]2,547,407	149,150	15,500
St. Scholastica, College of	Duluth, Minn.	1912	Mother A. Braegelman	38	520	....	520	.....	.....	.....	29,500
St. Teresa, College of	Winona, Minn.	1907	Sister M. A. Malloy	40	489	....	489	.....	.....	.....	34,000
St. Thomas, College of	St. Paul, Minn.	1885	Very Rev. Vincent J. Flynn	35	150	150	....	2,264,250	297,912	538,102	37,591
St. Thomas More College	Saskatoon, Saskatchewan, Can.	1936	Henry Carr	6	101	45	56	.....	.....	.....	.....
St. Thomas Seminary	Bloomfield, Conn.	1896	Rev. Joseph M. Griffin	16	350	350	....	.....	.....	.....	.....
St. Xavier College	Chicago, Ill.	1912	Sister Mary I. Bogan	42	476	....	476	1,119,811	.....	49,324	.....
Sainte-Marie, College of	Montreal, Can.	1848	Romeo Bergerson	45	610	610	....	1,500,000	.....	130,000	80,000
Salem College	Winston-Salem, N.C.	1772	Howard E. Rondthaler	39	360	....	360	1,228,425	675,000	373,423	29,155
Salem College	Salem, W.Va.	1888	S. Orestes Bond	15	184	62	122	313,815	127,492	64,630	15,000
Salinas Junior College	Salinas, Calif.	1920	John B. Lemos	19	273	88	185	750,000	.....	.....	9,000
Sam Houston State Teachers College	Huntsville, Texas	1879	Harmon L. Lowman	60	744	218	526	1,995,312	.....	107,105	63,000
Samuel Houston College	Austin, Texas	1876	Dr. Karl E. Downs	22	266	57	209	255,908	6,860	151,409	.....
San Angelo College	San Angelo, Texas	1928	Wilson H. Elkins	17	337	70	267	268,437	.....	.....	6,758
San Benito County Junior College	Hollister, Calif.	1919	A. S. Cakebread	21	45	20	25	300,000	.....	.....	.....
San Bernardino Valley Union Junior College	San Bernardino, Calif.	1926	John L. Lounsbury	28	375	75	300	950,000	.....	185,000	25,000
San Diego State College	San Diego, Calif.	1898	Dr. Walter R. Hepner	65	1,118	270	848	1,600,000	.....	.....	98,000
San Francisco Junior College	San Francisco, Calif.	1935	Archibald J. Cloud	116	4,844	1,553	3,291	2,225,000	.....	[q]518,764	26,100
San Francisco State College	San Francisco, Calif.	1899	Alexander C. Roberts	89	1,262	182	1,080	1,710,946	.....	23,366	50,000
San Francisco Theological Seminary	San Anselmo, Calif.	1871	Jesse H. Baird	17	81	57	24	367,116	670,600	91,769	34,546
San Francisco, University of	San Francisco, Calif.	1855	William J. Dunne	74	471	365	106	2,112,000	[q]	.....	52,000
San José State College	San José, Calif.	1857	Thomas W. MacQuarrie	140	2,500	488	2,012	4,782,124	.....	693,441	86,219
San Luis Obispo Junior College	San Luis Obispo, Calif.	1936	Lawrence Griffin	15	53	13	40	600,000	.....	50,000	5,600
San Mateo Junior College	San Mateo, Calif.	1922	Charles S. Morris	27	918	303	615	1,945,930	.....	526,985	10,000
Santa Ana Junior College	Santa Ana, Calif.	1915	John H. McCoy	25	1,414	438	986	60,000	.....	139,232	15,000
Santa Clara, University of	Santa Clara, Calif.	1851	Rev. Charles J. Walsh	25	126	126	....	3,500,000	600,000	156,000	51,000
Santa Maria Junior College	Santa Maria, Calif.	1920	Myrton D. Likes	26	65	20	45	2,200,000	.....	350,000	9,000
Santa Monica City College	Santa Monica, Calif.	1929	Elmer C. Sandmeyer	23	670	172	498	.....	.....	.....	10,500
Santa Rosa Junior College	Santa Rosa, Calif.	1918	Floyd P. Bailey	19	315	75	240	989,284	.....	382,057	12,000

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Santo Tomas, University of	Manila, Philippine Islands	1611	Fr. Eugenio Jordán	....	[e]1,104	746	358	$5,000,000	$.....	$.....	22,500
Sarah Lawrence College	Bronxville, N.Y.	1926	Dr. Harold Taylor	57	301	....	301	1,929,714	295,744	520,000	45,275
Saskatchewan, University of	Saskatoon, Saskatchewan, Can.	1907	James S. Thomson	135	1,793	1,200	593	5,223,451	209,714	1,238,173	85,000
Schreiner Institute	Kerrville, Texas	1923	James J. Delaney	24	350	328	22	579,000	375,000	283,000	8,000
Scottsbluff Junior College	Scottsbluff, Nebr.	1932	Jesse E. Shedd	15	89	26	63	100,000	.....	35,000	2,000
Scranton, University of	Scranton, Pa.	1888	Rev. W. C. Nevils	27	457	....	....	1,000,000	2,500,000	100,000	23,000
Scripps College	Claremont, Calif.	1926	Frederick Hard	29	230	....	230	2,088,188	950,635	326,019	30,615
Seattle College	Seattle, Wash.	1892	Harold O. Small	50	1,900	....	....	425,000	[q]1,000,000	120,000	30,000
Seattle Pacific College	Seattle, Wash.	1891	Charles H. Watson	29	396	107	289	398,461	100,000	184,302	19,500
Selma University	Selma, Ala.	1878	William H. Dinkins	29	652	258	394	105,502	.....	.....	8,000
Seminole Junior College	Seminole, Okla.	1931	O. D. Johns	10	20	8	12	.....	.....	.....	.....
Seton Hall College	South Orange, N.J.	1856	Rt. Rev. Mgr. James F. Kelley	58	1,646	374	1,272	1,500,000	.....	.....	19,300
Seton Hill College	Greensburg, Pa.	1883	Rev. Dr. James A. W. Reeves	57	478	....	478	2,796,000	500,000	.....	31,268
Shaw University	Raleigh, N.C.	1865	Robert P. Daniel	45	600	75	525	672,172	385,000	215,000	15,000
Shenandoah College and Shenandoah Conservatory of Music	Dayton, Va.	1875	Elmer N. Funkhouser	24	153	35	118	248,000	52,900	110,500	7,200
Shepherd College	Shepherdstown, W.Va.	1871	W. H. S. White	21	347	40	307	350,000	.....	80,000	20,000
Shorter College	Rome, Ga.	1873	Paul M. Cousins	28	269	....	269	500,000	500,000	.....	21,500
Shurtleff College	Alton, Ill.	1827	David A. Weaver	22	....	....	....	542,226	88,613	165,000	30,000
Sienna Heights College	Adrian, Mich.	1919	Rev. Mother M. Gerald	25	258	....	258	.....	.....	.....	22,500
Simmons College	Boston, Mass.	1899	Bancroft Beatley	150	1,565	2	1,563	2,387,630	3,161,279	831,525	90,000
Simmons University	Louisville, Ky.	1873	Dr. Marshall B. Lanier	7	126	95	31	15,000	3,000	19,538	1,000
Simpson College	Indianola, Iowa	1860	Edwin E. Voigt	30	260	66	194	589,437	1,401,464	275,340	31,000
Skidmore College	Saratoga Springs, N.Y.	1911	Henry T. Moore	82	894	....	894	2,762,736	852,889	901,555	57,121
Smith College	Northampton, Mass.	1871	Herbert J. Davis	251	2,258	....	2,258	9,345,000	6,775,000	2,805,000	313,747
Snead Junior College	Boaz, Ala.	1935	Festus M. Cook	22	114	26	88	653,000	310,000	69,000	6,395
Snow College	Ephraim, Utah	1888	James A. Nuttall	20	76	21	55	195,000	.....	58,000	8,900
South Carolina, University of	Columbia, S.C.	1801	Norman M. Smith	124	1,347	459	888	5,632,459	.....	1,867,241	125,000
South Carolina State Agricultural and Mechanical College	Orangeburg, S.C.	1896	Miller F. Whittaker	75	979	297	682	1,500,000	.....	268,285	22,000
South Dakota, University of	Vermillion, S. Dak.	1862	I. D. Weeks	78	439	116	323	2,500,000	15,000	90,000	114,000
South Dakota School of Mines and Technology	Rapid City, S. Dak.	1885	Joseph P. Connolly	20	63	60	3	1,200,000	250,000	145,000	20,000
South Dakota State College of Agriculture and Mechanical Arts	Brookings, S. Dak.	1881	Lyman E. Jackson	125	395	124	271	3,316,862	619,525	1,317,011	81,060
South Georgia College	Douglas, Ga.	1907	Joseph M. Thrash	20	168	46	122	305,701	.....	80,000	6,313
Southeast Missouri State Teachers College	Cape Girardeau, Mo.	1873	Walter W. Parker	60	1,274	557	717	2,000,000	.....	509,909	80,000
Southeastern Colorado, The Junior College of	Lamar, Colo.	1937	Alfred R. Young	[mm]7	25	2	23	90,000	.....	600	1,500
Southeastern Louisiana College	Hammond, La.	1925	Gladney J. Tinsley	65	278	60	218	2,000,400	.....	248,470	28,368
Southeastern State College	Durant, Okla.	1909	T. T. Montgomery	49	324	39	285	873,497	.....	155,482	30,129
Southern California, University of	Los Angeles, Calif.	1879	Rufus B. von Kleinsmid	850	9,581	4,066	5,515	10,000,000	1,600,000	.....	334,622
Southern Christian Institute	Edwards, Miss.	1875	John C. Long	22	429	105	324	361,349	.....	90,195	5,222
Southern Methodist University	Dallas, Texas	1911	Umphrey Lee	203	....	820	1,292	4,248,639	4,015,674	1,204,232	173,906
Southern Missionary College	Collegedale, Tenn.	1893	Kenneth A. Wright	30	398	141	257	355,295	.....	194,077	9,036
Southern Oregon College of Education	Ashland, Oreg.	1925	Walter Redford	20	100	15	85	346,739	.....	[cc]	19,464
Southern Seminary and Junior College	Buena Vista, Va.	1868	Margaret D. Robey	34	227	....	227	950,000	.....	238,242	5,000
Southern State Normal School	Springfield, S. Dak.	1881	William A. Thompson	23	82	23	59	420,445	134,212	77,583	17,000
Southern University	Scotlandville, La.	1880	Felton G. Clark	78	919	174	745	1,750,000	.....	658,000	28,534
Southwest Mississippi Junior College	Summit, Miss.	1917	James M. Kenne	12	112	39	73	250,000	.....	33,321	4,000
Southwest Missouri State Teachers College	Springfield, Mo.	1905	Roy Ellis	82	687	136	551	2,779,492	8,000	376,000	69,116

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Southwest Texas State Teachers College	San Marcos, Texas	1899	John G. Flowers	63	616	111	505	$1,876,849	$	$306,443	57,800
Southwestern	Memphis, Tenn.	1848	Charles E. Diehl	30	382	74	308	1,544,087	947,652	238,752	54,615
Southwestern College	Winfield, Kans.	1885	Mearl P. Culver	32	251	34	217	616,000	603,000	128,589	26,000
Southwestern Institute of Technology	Weatherford, Okla.	1901	R. H. Burton	30	581	181	400	686,029		126,368	32,470
Southwestern Junior College	Keene, Texas	1894	W. H. Shephard	18	292	100	192	465,000		255,000	9,000
Southwestern Louisiana Institute	Lafayette, La.	1898	Joel L. Fletcher	128	1,219	357	862	3,594,337		1,613,876	57,000
Southwestern University	Georgetown, Texas	1840	J. N. R. Score	62	1,136	593	543	2,500,000	730,000		72,000
Southwestern University	Los Angeles, Calif.	1911	Miriam Schumacher	20	496	389	107	350,000		37,375	9,000
Spelman College	Atlanta, Ga.	1881	Florence M. Read	44	471	....	471	923,566	3,178,445	246,553	.....
Spring Arbor Seminary and Junior College	Spring Arbor, Mich.	1873	James F. Gregory	13	180	60	120	160,000	10,000	15,000	6,000
Spring Hill College	Spring Hill, Mobile County, Ala.	1830	Very Rev. William D. O'Leary	33	154	154	....	1,500,000	250,000	321,879	48,748
Springfield College	Springfield, Mass.	1885	Dr. Ernest M. Best	45	380	62	318	1,649,327	1,107,084	120,000	.....
Springfield Junior College	Springfield, Ill.	1929	Mother M. B. Klaholt	20	116	34	82	.....	.....	.....	10,205
Stanford University	Stanford University, Calif.	1885	Donald B. Tresidder	700	3,137	1,164	1,973	19,362,436	32,410,683	(a)6,926,139	900,000
Stephen F. Austin State Teachers College	Nacogdoches, Texas	1917	Paul L. Boynton	55	367	92	275	1,253,824	.....	302,315	29,000
Sterling College	Sterling, Kans.	1886	Hugh A. Kelsey	21	137	40	97	369,992	462,759	88,518	20,785
Stevens Institute of Technology	Hoboken, N.J.	1870	Harvey N. Davis	62	(nn)527	527	....	2,728,900	.....	850,000	32,000
Stockton Junior College	Stockton, Calif.	1935	Dr. Arthur T. Bawden	56	1,182	199	983	.....	.....	292,000	.....
Storer College	Harpers Ferry, W. Va.	1867	Richard I. McKinney	12	83	12	71	261,000	106,879	53,562	20,000
Stout Institute, The	Menomonie, Wis.	1893	Burton E. Nelson	44	316	67	249	1,250,000	.....	311,766	29,855
Stowe Teachers College	St. Louis, Mo.	1890	Dr. Ruth M. Harris	21	410	39	371	6,000,000	.....	94,656	15,000
Stratford College	Danville, Va.	1852	John C. Simpson	23	289	10	279	240,000	26,250	145,000	5,838
Sue Bennett College	London, Ky.	1896	Oscie Sanders	12	81	9	72	.....	.....	.....	8,946
Suffolk University	Boston, Mass.	1906	Gleason L. Archer	19	147	109	38	910,561	.....	.....	17,159
Sul Ross State Teachers College	Alpine, Texas	1919	Richard M. Hawkins	25	335	69	266	1,099,824	.....	(a)241,862	25,609
Sullins College	Bristol, Va.	1870	William E. Martin	42	432	....	432	530,000	220,000	320,000	13,000
Sunflower Junior College	Moorhead, Miss.	1926	William B. Horton	17	45	12	33	.....	.....	.....	.....
Suomi College and Theological Seminary	Hancock, Mich.	1896	Viljo K. Nikander	10	56	13	43	124,872	8,717	24,398	8,000
Susquehanna University	Selinsgrove, Pa.	1858	G. Morris Smith	28	254	52	202	825,666	446,811	(a)158,148	21,500
Swarthmore College	Swarthmore, Pa.	1864	John W. Nason	97	441	83	358	4,487,042	8,204,565	1,182,750	140,000
Sweet Briar College	Sweet Briar, Va.	1901	Meta Glass	53	456	....	456	1,379,930	778,000	570,000	62,594
Syracuse University	Syracuse, N.Y.	1870	William P. Tolley	665	7,388	2,103	5,285	.....	.....	.....	351,186
Tabor College	Hillsboro, Kans.	1908	Peter E. Schellenberg	16	187	65	122	235,000	.....	74,769	11,197
Taft Junior College	Taft, Calif.	1922	Eugene M. Johnston	9	58	21	37	1,500,000	.....	350,000	8,000
Talladega College	Talladega, Ala.	1867	Adam D. Beittel	29	257	49	208	1,649,650	1,097,715	214,607	38,821
Tampa, University of	Tampa, Fla.	1931	Dr. Ellwood C. Nance	18	300	68	232	308,671	4,000	300,000	29,000
Tarkio College	Tarkio, Mo.	1883	M. Earle Collins	21	200	28	172	478,498	659,513	100,833	18,283
Teachers College, Athenaeum of Ohio	Cincinnati, Ohio	1928	Very Rev. Mgr. Carl J. Ryan	20	322	5	317	110,400	.....	21,487	25,100
Teachers College, Columbia University	New York, N.Y.	1888	William F. Russell	444	6,619	1,092	5,527	8,265,000	6,870,000	3,000,000	234,339
Temple University	Philadelphia, Pa.	1884	Robert L. Johnson	624	7,734	3,765	3,969	7,505,330	193,547	3,027,900	203,000
Tennessee, University of	Knoxville, Tenn.	1794	James D. Hoskins	580	2,237	766	1,471	12,782,670	612,944	3,992,382	251,740
Tennessee A and I State College	Nashville, Tenn.	1919	Dr. Walter S. Davis	53	1,206	193	1,013	3,000,000	.....	21,000,931	35,971
Tennessee College for Women	Murfreesboro, Tenn.	1905	John B. Clark	13	125	....	125	268,300	5,500	34,372	10,000
Tennessee Polytechnic Institute	Cookeville, Tenn.	1915	William E. Derryberry	38	358	127	231	1,500,000	.....	250,000	30,000
Tennessee Wesleyan College	Athens, Tenn.	1866	James L. Robb	20	169	18	151	600,000	130,000	69,405	18,000
Texarkana College	Texarkana, Texas	1927	Henry W. Stillwell	11	255	56	199	.....	250,000	45,000	7,000
Texas, Agricultural and Mechanical College of	College Station, Texas	1871	Gibb Gilchrist	350	3,000	3,000	....	18,293,082	316,584	10,547,378	122,578
Texas, University of	Austin, Texas	1881	Theophilus S. Painter(f)	425	8,277	3,049	5,128	25,086,247	57,008,449	4,356,380	760,947

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Texas Christian University	Fort Worth, Texas	1873	McGruder E. Sadler	85	1,125	384	741	$2,673,460	$4,000,000	$918,856	80,000
Texas College	Tyler, Texas	1894	Dominion R. Glass	32	535	120	415	500,000	3,700	227,741	9,000
Texas College of Arts and Industries	Kingsville, Texas	1923	Edward N. Jones	57	505	128	377	1,459,051	.....	516,350	29,002
Texas College of Mines	El Paso, Texas	1913	Dossie M. Wiggins	50	879	311	568	1,150,542	579,747	417,710	35,200
Texas Lutheran College	Sequin, Texas	1891	William F. Kraushaar	12	95	22	73	275,000	20,000	72,500	16,780
Texas State College for Women	Denton, Texas	1903	Louis H. Hubbard	....	2,760	....	2,760	5,115,553	.....	2,156,633	92,000
Texas Technological College	Lubbock, Texas	1923	William M. Whyburn	153	2,222	797	1,425	.....	.....	.....	93,889
Texas Wesleyan College	Fort Worth, Texas	1891	Dr. Law Sone	38	460	92	368	700,000	162,000	92,000	18,000
Thiel College	Greenville, Pa.	1870	William F. Zimmerman	17	150	49	101	434,000	170,000	130,000	20,000
Thornton Junior College	Harvey, Ill.	1927	Dr. William E. McVey	19	125	50	75	.....	.....	.....	8,500
Tillotson College	Austin, Texas	1877	William H. Jones	35	532	41	490	600,000	500,000	150,900	22,000
Toledo, University of	Toledo, Ohio	1872	Philip C. Nash	101	2,296	699	1,597	2,735,000	25,000	612,963	122,000
Toronto, University of	Toronto, Ontario, Can.	1827	Sidney Smith	1,023	7,226	3,981	3,245	12,625,000	14,350,000	1,442,000	436,269
Toronto Bible College, The	Toronto, Ontario, Can.	1894	John McNicol	6	197	33	164	207,000	.....	33,700	6,000
Tougaloo College	Tougaloo, Miss.	1869	Judson L. Cross	18	173	27	146	541,500	54,735	128,303	13,825
Transylvania College	Lexington, Ky.	1780	Henry N. Sherwood	20	161	41	120	695,174	801,739	88,090	54,000
Trenton Junior College	Trenton, Mo.	1925	Samuel M. Rissler	10	23	10	13	.....	.....	.....	5,700
Trevecca Nazarene College	Nashville, Tenn.	1901	Aleander B. Mackey	16	310	65	245	225,000	.....	78,000	15,000
Tri-State College	Angola, Ind.	1884	Burton Handy	20	300	290	10	250,000	.....	.....	8,000
Trinidad State Junior College	Trinidad, Colo.	1925	Peter P. Mickelson	43	1,085	483	602	285,000	600	126,369	6,500
Trinity College	Hartford, Conn.	1823	Arthur H. Hughes[f]	39	257	257	....	4,048,100	3,779,294	640,915	140,000
Trinity College	Washington, D.C.	1897	Sister C. Dorothea	56	480	....	480	3,307,313	530,531	352,484	45,000
Trinity College	Sioux City, Iowa	1913	Rev. Francis J. Friedel	11	26	26	....	250,000	.....	66,500	14,223
Trinity College	Burlington, Vt.	1925	Rev. Mother M. Emmanuel	16	106	....	106	.....	.....	.....	10,000
Trinity University	San Antonio, Texas	1869	Monroe G. Everett	46	778	136	642	455,171	318,850	178,069	32,282
Tufts College	Medford, Mass.	1852	Leonard Carmichael	697	1,059	569	490	3,955,075	8,825,719	[a]2,599,956	200,000
Tulane University of Louisiana, The	New Orleans, La.	1834	Rufus C. Harris	664	3,601	1,594	2,007	8,861,855	10,632,099	561,880	299,388
Tulsa, The University of	Tulsa, Okla.	1894	Dr. C. I. Pontius	61	875	385	490	1,507,539	1,366,935	604,697	79,000
Tusculum College	Greeneville, Tenn.	1794	Jere A. Moore[f]	19	201	25	176	595,058	801,381	136,000	19,000
Tuskegee Institute	Tuskegee Institute, Ala.	1881	Frederick D. Patterson	193	1,163	273	890	4,453,056	6,968,621	2,062,923	42,000
Tyler Junior College	Tyler, Texas	1926	John M. Hodges	20	289	53	236	400,000	.....	26,791	7,320
Union College	Barbourville, Ky.	1879	Conway Boatman	21	287	43	244	518,376	478,000	130,327	17,735
Union College	Lincoln, Nebr.	1891	Erwin E. Cossentine	42	495	221	274	353,377	.....	602,886	34,500
Union College	Schenectady, N.Y.	1795	Benjamin P. Whitaker[f]	70	181	181	....	3,800,000	4,000,000	1,229,000	120,000
Union Junior College	Cranford, N.J.	1933	Kenneth C. MacKay	12	147	67	80	75,000	.....	25,000	6,000
Union University	Jackson, Tenn.	1834	Warren F. Jones	28	248	98	150	700,000	385,000	18,000	16,000
United College	Winnipeg, Manitoba, Can.	1871	Rev. William C. Graham	31	541	234	307	735,812	263,126	134,376	45,000
United States Coast Guard Academy	New London, Conn.	1876	Rear Admiral James Pine	39	393	393	....	7,800,000	.....	.....	25,000
United States Merchant Marine Academy	Kings Point, L.I., N.Y.	1938	Com. Giles C. Stedman	220	1,800	1,800	....	.....	.....	.....	8,210
United States Military Academy	West Point, N.Y.	1802	Maj. Gen. Francis B. Wilby	408	2,552	2,552	....	75,000,000	.....	6,930,000	124,701
United States Naval Academy	Annapolis, Md.	1845	Rear Adm. J. R. Beardall	405	2,949	2,949	....	37,000,000	.....	.....	103,000
Upper Iowa University	Fayette, Iowa	1856	Dr. Vivian T. Smith	21	175	25	150	325,546	306,039	65,340	16,225
Upsala College	East Orange, N.J.	1893	Dr. Evald B. Lawson	25	310	85	225	450,163	208,550	150,200	25,000
Urbana Junior College	Urbana, Ohio	1850	Rev. Russell Eaton	3	9	....	9	120,000	512,000	21,971	16,000
Ursinus College	Collegeville, Pa.	1869	Norman E. McClure	44	356	53	303	2,000,000	700,000	400,000	33,000
Ursuline College	New Orleans, La.	1727	Mother M. M. Clarke	20	75	....	75	.....	.....	.....	9,000
Ursuline College for Women	Cleveland, Ohio	1871	Mother Marie Sands	31	231	....	231	.....	.....	.....	17,000
Ursuline College of Arts	London, Ontario, Can.	1919	Mother M. Eileen	19	103	....	103	.....	.....	.....	10,000
Utah, University of	Salt Lake City, Utah	1850	Dr. LeRoy E. Cowles	331	3,579	1,137	2,442	4,000,000	778,485	2,274,440	174,000
Utah State Agricultural College	Logan, Utah	1888	Franklin S. Harris	129	1,128	340	788	3,688,994	.....	1,531,492	95,000
Valley Forge Military Academy	Wayne, Pa.	1928	Maj. Gen. Milton G. Baker	58	628	628	....	1,750,000	300,000	.....	40,000
Valparaiso University	Valparaiso, Ind.	1859	Otto P. Kretzmann	45	540	154	386	1,409,379	492,155	336,955	53,000
Vanderbilt University	Nashville, Tenn.	1872	Oliver C. Carmichael	429	1,406	649	757	7,880,886	28,329,173	1,102,090	454,626
Vassar College	Poughkeepsie, N.Y.	1861	Henry N. MacCracken	202	1,492	....	1,492	10,200,000	11,700,000	2,500,000	[a]243,587

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Vermont, University of, and State Agricultural College	Burlington, Vt.	1791	John S. Millis	174	768	129	639	$4,110,500	$1,988,210	$1,200,000	200,000
Vermont Junior College	Montpelier, Vt.	1833	John H. Kingsley	19	152	7	145	378,000	113,931	122,000	5,000
Vermont State Normal School	Johnson, Vt.	1867	William H. Carter	11	52	....	52	.....	.....	.....	7,718
Victoria College	Victoria, B.C., Can.	1902	John M. Ewing	13	261	139	122	128,000	.....	30,900	6,500
Victoria Junior College	Victoria, Texas	1918	James H. Bankston	14	54	7	47	500,000	.....	(ee)	10,397
Villa Madonna College	Covington, Ky.	1921	Most Rev. Wm. T. Mulloy	16	92	10	82	150,000	.....	.....	13,000
Villa Maria College	Erie, Pa.	1925	Sister M. Doloretta	35	350	....	350	1,200,000	.....	53,500	15,000
Villanova College	Villanova, Pa.	1842	Francis X. N. McGuire	165	229	229	....	5,240,034	3,081,240	.....	74,691
Virginia, University of	Charlottesville, Va.	1819	John L. Newcomb	214	561	452	109	9,584,173	13,000,000	3,500,000	424,002
Virginia Intermont College	Bristol, Va.	1884	Dr. R. L. Brantley	45	473	....	473	728,118	347,284	263,006	11,000
Virginia Junior College	Virginia, Minn.	1921	Fred F. Cope(f)	19	123	42	81	24,468	.....	.....	18,000
Virginia Military Institute	Lexington, Va.	1839	Charles E. Kilbourne	53	326	326	....	3,055,448	324,899	1,065,066	72,240
Virginia Polytechnic Institute	Blacksburg, Va.	1872	Dr. John R. Hutcheson(f)	131	738	608	130	8,939,309	10,256	1,700,000	110,373
Virginia State College for Negroes	Ettrick, Va.	1882	Luther H. Foster	116	1,120	242	878	1,827,809	173,000	957,303	32,000
Virginia State Teachers College	Farmville, Va.	1884	Joseph L. Jarman	53	875	....	875	1,715,000	(i)	.....	40,524
Virginia Union University	Richmond, Va.	1865	John M. Ellison	42	582	135	447	1,159,249	787,292	212,727	32,000
Visalia Junior College	Visalia, Calif.	1926	Lawrence J. Williams	19	201	43	158	400,000	.....	.....	7,020
Voorhees Normal and Industrial School	Denmark, S.C.	1897	Joshua E. Blanton	34	815	385	430	305,000	37,124	72,000	3,151
Wabash College	Crawfordsville, Ind.	1832	Frank H. Sparks	28	45	45	....	936,500	2,500,000	(a)370,000	90,000
Wagner Memorial Luthern College	Staten Island, N.Y.	1883	Walter C. Langsam	32	233	62	171	1,500,000	340,000	183,000	35,362
Wake Forest College	Wake Forest, N.C.	1834	Thurman D. Kitchin	60	809	672	137	2,000,000	3,000,000	675,000	80,000
Waldorf College	Forest City, Iowa	1903	Morton O. Nilssen	15	98	9	89	.....	.....	.....	.....
Walla Walla College	College Place, Wash.	1892	George W. Bowers	49	565	217	348	573,143	.....	409,304	22,020
Ward-Belmont School	Nashville, Tenn.	1913	Joseph E. Burk	67	780	....	780	1,250,000	.....	600,000	16,200
Wartburg College	Waverly, Iowa	1868	Conrad H. Becker	21	165	81	84	450,636	44,945	123,980	26,000
Washburn Municipal University of Topeka	Topeka, Kans.	1865	Bryan S. Stoffer	63	580	133	447	1,309,274	1,297,310	341,283	59,415
Washington, State College of	Pullman, Wash.	1890	Wilson Compton	200	1,978	483	1,495	6,609,508	5,810,203	3,159,689	525,000
Washington, University of	Seattle, Wash.	1861	Dr. Lee P. Sieg	647	6,879	1,763	5,116	20,267,001	.....	3,572,452	564,078
Washington and Jefferson College	Washington, Pa.	1780	Ralph C. Hutchison	35	98	98	....	1,969,204	1,555,280	163,385	64,000
Washington and Lee University	Lexington, Va.	1749	Francis P. Gaines	65	941	941	....	2,882,759	3,174,307	489,991	117,000
Washington College	Chestertown, Md.	1782	Gilbert W. Mead	30	265	95	170	1,000,000	.....	.....	50,000
Washington Missionary College	Takoma Park, Washington, D.C.	1904	Benjamin G. Wilkinson	50	509	193	316	750,000	.....	.....	30,971
Washington State Normal School	Machias, Maine	1909	Clifford O. T. Wieden	13	55	2	53	234,000	.....	.....	3,250
Washington University	St. Louis, Mo.	1853	Arthur H. Compton	594	2,966	1,261	1,705	15,777,685	22,006,269	4,264,297	355,343
Waterloo College	Waterloo, Ontario, Can.	1924	Dr. Helmut T. Lehmann	7	67	33	34	168,000	30,000	40,000	12,000
Waukon Junior College	Waukon, Iowa	1923	B. H. Graeber	4	12	1	11	200,000	.....	.....	2,000
Wayland Baptist College	Plainview, Texas	1909	George W. McDonald	12	201	60	141	225,000	70,000	47,000	6,000
Wayne University	Detroit, Mich.	1868	David D. Henry	867	11,094	3,528	7,566	4,500,000	.....	3,890,000	252,931
Waynesburg College	Waynesburg, Pa.	1850	Paul R. Stewart	15	417	93	324	735,347	206,607	82,407	20,500
Weber College	Ogden, Utah	1889	Henry A. Dixon	36	465	115	350	(i)	.....	289,690	16,000
Webster College	Webster Groves, Mo.	1915	George F. Donovan	50	300	....	300	.....	.....	.....	25,866
Wellesley College	Wellesley, Mass.	1870	Mildred McA. Horton	200	1,622	....	1,622	13,130,890	12,411,783	2,585,000	230,000
Wells College	Aurora, N.Y.	1868	William E. Weld	44	306	....	306	1,938,033	(a)1,449,749	(a)433,770	99,250
Wesley College	Grand Forks, N.D.	1892	Thomas R. Hicks	15	198	39	159	228,275	131,024	48,894	1,081
Wesleyan College	Macon, Ga.	1836	Nenien C. McPherson, Jr.	65	641	....	641	2,606,690	1,200,000	482,228	30,510
Wesleyan Methodist College	Central, S.C.	1906	James B. Hilson	11	107	34	73	100,000	.....	40,000	3,800
Wesleyan University	Middletown, Conn.	1831	Victor L. Butterfield	85	336	336	....	5,756,890	5,594,240	1,108,000	444,221
Wessington Springs College	Wessington Springs, S.D.	1886	George E. Kline	13	57	28	29	200,000	75,000	15,000	10,000
West Liberty State College	West Liberty, W.Va.	1837	Paul N. Elbin	23	118	18	100	800,000	.....	840,025	22,000
West Texas State Teachers College	Canyon, Texas	1910	Joseph A. Hill	70	914	240	674	2,000,000	.....	2,178,732	43,083
West Virginia Institute of Technology	Montgomery, W.Va.	1895	Edward S. Maclin	25	218	70	148	.....	.....	138,000	21,000
West Virginia State College	Institute, W.Va.	1891	John W. Davis	45	714	161	553	2,033,294	.....	491,127	.....

Name of Institution	Location	Year Founded	Chief Executive	No. Teachers	No. Students 1944–45			Value of Plant	Endowment	Income 1944–45	Volumes in Library
					Total	Men	Women				
West Virginia University	Morgantown, W.Va.	1867	Charles T. Neff, Jr.(f)	248	1,718	687	1,031	$15,000,000	$105,300	$3,119,952	231,000
West Virginia Wesleyan College	Buckhannon, W.Va.	1890	Joseph W. Broyles	26	181	52	129	537,000	315,000	157,700	26,000
Westbrook Junior College	Portland, Maine	1831	Milton D. Proctor	32	320	....	320	345,988	60,671	229,763	6,600
Western Carolina Teachers College	Cullowhee, N.C.	1889	Hiram T. Hunter	37	281	53	228	1,669,322	.....	191,937	16,335
Western College for Women, The	Oxford, Ohio	1853	Philip E. Henderson	44	366	....	366	1,221,545	812,588	405,000	55,374
Western Illinois State Teachers College	Macomb, Ill.	1899	Frank A. Beu	86	1,294	310	984	2,484,900	.....	(cc)	50,900
Western Kentucky State Teachers College	Bowling Green, Ky.	1906	Paul L. Garrett	89	1,033	205	828	3,200,401	.....	501,804	78,000
Western Maryland College	Westminster, Md.	1867	Fred G. Holloway	45	476	88	388	2,024,005	920,000	443,156	43,572
Western Michigan College of Education	Kalamazoo, Mich.	1903	Paul V. Sangren	215	1,782	329	1,453	3,550,000	.....	1,090,981	61,938
Western Ontario, University of	London, Ontario, Can.	1878	William S. Fox	197	1,220	659	561	2,474,155	926,979	627,384	169,000
Western Reserve University	Cleveland, Ohio	1826	Winfred G. Leutner	777	8,871	2,445	6,426	10,972,967	16,367,059	2,820,613	580,000
Western State College of Colorado	Gunnison, Colo.	1901	Charles C. Casey	26	193	47	146	1,100,000	.....	160,000	30,000
Western State Normal School	Gorham, Maine	1878	Dr. Francis L. Bailey	30	225	7	218	.....	.....	.....	12,000
Western Union College	Le Mars, Iowa	1900	David O. Kime	22	135	37	98	572,949	207,277	.....	15,100
Western Washington College of Education	Bellingham, Wash.	1895	William W. Haggard	54	340	68	272	1,500,000	.....	285,000	70,000
Westminster College	Fulton, Mo.	1851	Franc L. McCluer	21	64	64	....	600,000	600,000	198,000	32,000
Westminster College	Salt Lake City, Utah	1875	Robert D. Steele	18	106	16	90	500,000	150,000	.....	14,500
Westminster Junior College	Tehuacana, Texas	1895	J. N. Russel Score	5	27	8	19	250,000	.....	6,000	5,000
Wheaton College	Wheaton, Ill.	1860	Victor R. Edman	90	1,333	413	920	1,691,800	706,600	1,089,100	90,000
Wheaton College	Norton, Mass.	1834	Alexander H. Mencely	68	472	....	472	2,774,704	1,200,773	592,262	57,112
Wheelock College	Boston, Mass.	1889	Dr. Winifred E. Bain	20	300	....	300	500,000	40,000	.....	9,000
Whitman College	Walla Walla, Wash.	1859	Winslow S. Anderson	50	417	60	857	600,257	1,302,775	465,722	77,560
Whittier College	Whittier, Calif.	1896	William C. Jones	43	427	58	369	580,000	624,000	239,350	60,000
Whitworth College	Brookhaven, Miss.	1858	Robert S. Daniel	18	137	1	136	500,000	.....	.....	9,720
Whitworth College	Spokane, Wash.	1890	Frank F. Warren	26	441	92	349	429,662	19,637	205,413	18,000
Wichita, University of	Wichita, Kans.	1892	William M. Jardine	61	930	301	629	1,846,900	95,371	485,548	74,000
Wilberforce University	Wilberforce, Ohio	1856	Charles H. Wesley	79	1,127	330	797	8,209,280	79,298	684,059	23,600
Wiley College	Marshall, Texas	1873	Egbert C. McLeod	44	453	103	350	403,462	600,000	160,000	.....
Willamette University	Salem, Oreg.	1842	Dr. G. Herbert Smith	50	450	53	397	1,001,905	1,800,000	300,000	43,000
William and Mary, College of	Williamsburg, Va.	1693	John E. Pomfret	100	1,050	250	800	7,000,000	2,000,000	1,500,000	240,000
William Jennings Bryan University	Dayton, Tenn.	1926	Judson A. Rudd	10	67	17	50	177,957	.....	68,233	30,000
William Jewell College	Liberty, Mo.	1849	Walter P. Binns	33	363	137	226	1,213,421	1,320,553	174,277	55,307
William Penn College	Oskaloosa, Iowa	1873	Cecil E. Hinshaw	20	106	25	81	413,000	(a)126,700	(a)78,830	28,900
William Woods College	Fulton, Mo.	1890	Harlie L. Smith	33	315	....	315	900,000	500,000	280,000	13,000
Williams College	Berkeley, Calif.	1918	John W. Hopkins	34	50	25	25	500,000	.....	.....	10,000
Williams College	Williamstown, Mass.	1793	James P. Baxter, III	99	133	133	....	6,063,631	11,962,080	960,148	201,923
Williamsport-Dickinson Junior College	Williamsport, Pa.	1848	John W. Long	22	245	50	195	831,528	323,742	109,355	10,518
Willimantic State Teachers College	Willimantic, Conn.	1889	George H. Shafer	40	121	2	119	500,000	.....	.....	8,000
Wilmington College	Wilmington, Ohio	1870	Sheppard A. Watson	25	190	53	137	446,735	313,919	53,711	20,507
Wilson College	Chambersburg, Pa.	1869	Paul S. Havens	55	425	....	425	1,179,467	865,205	475,789	55,000
Wilson Teachers College	Washington, D.C.	1873	Walter E. Hager	45	343	11	332	760,000	.....	218,967	25,000
Wingate Junior College	Wingate, N.C.	1896	C. C. Burris	12	164	70	94	123,000	.....	26,573	6,000
Winona State Teachers College	Winona, Minn.	1858	Nels Minné	...	199	36	163	1,970,000	.....	182,430	22,000
Winston-Salem Teachers College	Winston Salem, N.C.	1892	Francis L. Atkins	25	626	54	572	1,113,532	.....	181,977	21,289
Winthrop College	Rock Hill, S.C.	1886	Henry R. Sims	79	1,483	....	1,483	4,180,000	.....	709,750	72,760
Wisconsin, The University of	Madison, Wis.	1848	Edwin B. Fred	652	6,711	2,011	4,700	25,340,066	2,711,272	14,069,608	1,200,000
Wisconsin State Teachers College	La Crosse, Wis.	1909	Rexford S. Mitchell	48	357	34	323	1,481,400	.....	212,000	34,644
Wisconsin State Teachers College	Oshkosh, Wis.	1871	Forrest R. Polk	43	252	32	220	1,242,510	.....	195,600	37,300
Wisconsin State Teachers College	Milwaukee, Wis.	1880	Frank E. Baker	83	932	105	827	1,500,000	.....	386,428	62,000
Wisconsin State Teachers College	Platteville, Wis.	1866	Chester O. Newlun	35	....	....	....	.....	.....	.....	.....
Wisconsin State Teachers College	River Falls, Wis.	1874	J. H. Ames	37	257	68	189	887,000	.....	(cc)170,377	24,385
Wisconsin State Teachers College	Superior, Wis.	1893	Robert C. Williams	45	225	42	183	1,000,000	.....	244,080	40,000
Wisconsin State Teachers College	Whitewater, Wis.	1866	C. M. Yoder	50	330	50	280	1,000,000	.....	192,000	36,000

Name of Institution	Location	Year Founded	Chief Executive	No. Teachers	No. Students 1944–45			Value of Plant	Endowment	Income 1944–45	Volumes in Library
					Total	Men	Women				
Wittenberg College	Springfield, Ohio	1845	Rees E. Tulloss	47	495	163	332	$2,440,339	$2,207,567	$344,000	73,500
Wofford College	Spartanburg, S.C.	1854	Walter K. Greene	24	99	99	....	744,675	838,581	[a]44,268	40,000
Woman's College of the University of North Carolina	Greensboro, N.C.	1891	Walter C. Jackson	195	2,200	....	2,200	7,695,389	.....	1,333,853	114,000
Wood Junior College	Mathiston, Miss.	1886	Walter L. Russell	13	145	16	129	.....	.....	50,000	5,814
Woodrow Wilson Branch of Chicago Junior College	Chicago, Ill.	1934	John A. Bartky	45	1,106	342	764	1,000,000	.....	254,000	67,000
Woodstock College	Woodstock, Md.	1867	Rev. David Nugent	34	151	151	....	3,000,000	.....	.....	200,000
Wooster, College of	Wooster, Ohio	1866	Howard F. Lowry	75	645	114	531	2,621,321	3,471,673	800,000	100,739
Worcester Junior College	Worcester, Mass.	1938	Irving R. Hobby	...	300	200	100	250,000	.....	19,108	2,400
Worcester Polytechnic Institute	Worcester, Mass.	1865	Rear Adm. W. T. Cluverius	61	152	152	....	2,743,931	4,875,791	276,088	34,000
Worthington Junior College	Worthington, Minn.	1936	W. Donald Olsen	5	35	8	27	2,000,000	.....	2,550	3,139
Wycliffe College	Toronto, Ontario, Can.	1877	Rev. Ramsay Armitage	5	23	23	....	.....	.....	.....	17,000
Wyoming, University of	Laramie, Wyo.	1886	George D. Humphrey	122	863	273	590	4,900,000	4,200,000	2,897,125	123,259
Xavier University	Cincinnati, Ohio	1831	C. J. Steiner	49	952	409	543	1,512,242	266,270	245,000	84,101
Yale University	New Haven, Conn.	1701	Charles Seymour	992	1,993	1,333	660	71,990,351	110,598,129	8,139,466	2,456,700
Yankton College	Yankton, S. Dak.	1881	William C. Lang[f]	30	250	50	200	700,000	700,000	100,123	[ss]46,500
Yeshiva College	New York, N.Y.	[aaa]1928	Rabbi Dr. S. Belkin	71	641	641	....	1,569,729	975,760	341,912	69,156
York College	York, Nebr.	1890	Deleth E. Weidler	22	119	43	76	93,842	130,504	48,069	1,700
Young L. G. Harris College and Academy	Young Harris, Ga.	1886	Joseph W. Sharp	14	353	127	226	225,000	115,000	[tt]5,474	11,230
Youngstown College	Youngstown, Ohio	1908	Dr. Howard W. Jones	69	1,332	....	....	710,000	.....	196,500	33,520
Yuba College	Marysville, Calif.	1927	Pedro Osuna	27	167	43	124	229,156	.....	197,730	5,500

Venezuela and Ecuador in a confederation now called Great Colombia. Disintegration of the confederation in 1829–30 led to the continuance of Colombia, then called New Granada, as a separate state. Colombia underwent several changes in form of government in the 19th century under different constitutions, the present one being adopted in 1886; extensive amendments were put into effect Feb. 12, 1945. Colombia now has a unitary government, with a president popularly elected for a four-year term, a bicameral congress, a council of state, and a judiciary headed by a Supreme Court of Justice. The Senate has 63 members and the Chamber of Representatives 131. The principal parties are the Liberal (in power since 1930) and the Conservative. The republic is divided territorially into 14 departments, 4 intendencies, and 6 commissaries.

Religion and Education.—Roman Catholicism is the state religion and Colombia is one of the most strongly Catholic of all Latin American countries, though freedom of worship is permitted. Colombia has four Catholic archbishoprics (Bogotá, Cartagena, Popayán, and Medellín) and 13 bishoprics. The first Inter-American Congress of Catholic Education, attended by delegates from all American republics, opened in Bogotá June 2 with messages from President López and Pope Pius XII.

Primary education is free though not compulsory; both the government and the Catholic Church participate in it. Literacy, according to the 1938 census, was 43.3 per cent. The latest education statistics showed 19,901 primary schools with 685,317 pupils, 776 intermediate schools with 58,980 pupils, and eight universities with 3,713 enrolled. The national university at Bogotá was founded in 1572 and became autonomous in 1935. There are other institutions of university level at Bogotá, Medellín, Popayán, Cartagena, and Pasto.

Communications.—The mountainous topography is a serious obstacle to surface transportation, although in recent years the government has undertaken an extensive road-building program. Railway mileage totals 2,046. The government owns and operates the seven main railroads of Colombia and in 1945 was planning construction of an additional 1,180 miles; private and departmental lines also operate. Generally speaking, railways have deteriorated during the past few years because of the difficulty of obtaining new equipment and repair parts. Railway traffic increased, however, from 5,800,000 passengers and 1,500,000 tons of freight in 1941 to 12,000,000 passengers and 2,900,000 tons of freight in 1944. The most ambitious construction projects are the extension of a southern line from Popayán to the Ecuadorian border and the linking of two important railroads by a short line from Ibagué to Armenia. Colombia has 5,682 miles of national roads and 3,950 miles of departmental roads, of which 239 miles are paved; there are some 20,000 more miles of unimproved roads. There are two main highways from north to south and an important transversal highway from the Venezuelan border to Medellín. January saw the first truck trip from the Pacific port of Buenaventura to Cali over a recently completed important road. A 10,000,000-peso bond issue authorized in 1945 included P4,600,000 for military highways. Highway transportation deteriorated badly in 1944 because of lack of equipment. Colombia's most important inland waterway, the Magdalena River, is constantly used to transport goods between the interior and the port of Barranquilla; it is navigable for 880 miles. Other important rivers and their navigable lengths are the Cauca (630 miles), the Caquetá (1,430 miles), the Putumayo (1,000 miles), and the Meta (680 miles). Silting of the Magdalena channel at Barranquilla in late 1944 and early 1945 caused serious freight congestion at nearby Cartagena and at Buenaventura and on the country's railways and roads. Avianca, a Pan American Airways affiliate company, has a large network of airlines covering all parts of Colombia. It provides daily plane service from Bogotá to all principal cities. Its service was completely disrupted by a serious strike, Nov. 11–18, 1944. Steps have been taken to construct, with government aid, new and enlarged airports at Bogotá and at Leticia on the Amazon. Organization of a new airline, Líneas Aéreas Taca de Colombia, was completed early in 1945. KLM, the Dutch airline, was authorized for flights to Bogotá. Colombia had a 1944 vehicle registration of 13,319 passenger cars, 3,177 busses, and 8,016 trucks. Recent statistics show a total of 1,075 telegraph offices with 21,594 miles of line, 41,710 telephones with 135,500 miles of line, 105 radio broadcasting stations and about 175,000 receiving sets, and 823 postoffices. Plans are in process to link the telephone systems of the country. Bogotá plans 10,000 new phone lines by April 1947, and will transform its phone service entirely to an automatic basis by October 1949.

Production.—Colombia is primarily agricultural, with more than 3,000,000 people engaged in farming and stock raising. Agricultural production normally represents about 40 per cent of all national production. Principal crops are coffee, corn, sugar-cane, bananas, wheat, rice, and potatoes. The livestock population is estimated at 10,000,000 cattle, 1,600,000 hogs, 1,000,000 sheep and 600,000 goats. Estimated production of principal crops for 1944 was as follows: coffee, 5,500,000 bags of 60 kilograms; (the following, all in metric tons): rice, 65,000; sugar, 72,199; wheat, 100,000; cacao, 7,500; beans, 36,000; corn, 653,132; bananas, 713,998; yucca, 1,053,950; potatoes, 418,000; cotton, 4,800. Of these crops, wheat, rice, and sugar showed slight increases over 1943 production; cotton production was up 9 per cent. The National Federation of Coffee Growers unsuccessfully continued its efforts to get a higher price from the United States. Cattle slaughtering in 1945 was expected to be 1,200,000 head. President López in March 1945, approved a five-year plan for agricultural development and it was anticipated that the national budgets, 1945–49, would include from 7,000,000 to 9,000,000 pesos annually for such a purpose. Colombian mineral production is also very important, the chief items being petroleum, gold, silver, platinum, emeralds, salt, and coal. Production figures included: gold, 553,531 troy ounces (as against 565,501 ounces in 1943); platinum, 34,259 troy ounces (1943: 34,563); silver, 197,323 troy ounces (1943: 209,950); crude petroleum, 22,647,476 barrels (1943: 13,500,000). Terrestrial salt to the amount of 93,863,518 tons was produced in 1943, mostly from the huge government-owned salt mines at Zipaquirá. Iron ore deposits in Boyacá were actively developed in 1945. The value of gold and silver produced in 1944 was $19,181,000; 60 per cent of each metal came from Antioquia. Gold production in the first quarter of 1945 was slightly higher

than in the corresponding period of 1944. Small, but increasing amounts of rubber and cinchona were being produced in 1944–45. Industrial output is important despite large Colombian imports of manufactured goods. The chief industrial centers are Medellín, Cartagena, Barranquilla, Bogotá, Manizales, Cali, and Bucaramanga. Industrial production in 1944 was estimated to be 25 to 30 per cent greater than in 1943. The 12 leading industries at the beginning of 1944 had a fixed capital investment of 131,993,917 pesos (peso = 57 cents), the leading four being textiles, beer, sugar, and cement. Investment in 1944 alone in new Colombian enterprises was estimated at more than P50,000,000. Production in 1943 by the principal industries was valued at P213,030,326, the chief items being tiles, cigars and cigarettes, beer, cereal milling, sugar, and chocolates. Cement production in 1944 was 235,000 metric tons, a record figure but still insufficient for national needs. Early in 1945 a large hydroelectric plant was under construction at Tobia, a steel plant at Paz del Rio, and a soda ash plant near Bogotá.

Finances and Economic Conditions.—The ordinary budget for 1944 was calculated to balance at P116,145,688 and the extraordinary budget at P85,378,422. Actual collections toward the ordinary budget totalled P97,021,110 and actual expenditures P114,336,908, leaving a declared budget deficit of P17,315,898. The 1945 budget (consolidated) was calculated to balance at P171,912,406. The total public debt decreased in 1944 from P318,425,000 to P289,608,000, including an increase in the internal debt from P177,740,000 to P187,374,000 and a decrease in the external debt from P140,685,000 to P102,-234,000. Ordinary national revenues for the first six months of 1945 were P56,960,000 as against P34,843,000 for the same period in 1944. The budget deficit June 30, 1945, was P12,700,000. The national debt on Sept. 2, 1945, totalled P379,068,695, an increase of P50,053,799 since June 30, 1944. The anticipated 1945 deficit of P55,000,000 was to be covered by credit operations and probably internal loans. The 1944 balance of payments reflected an export balance of $45,543,081.37, a decrease of about $13,000,000 from 1943. This downward trend continued and the first four months of 1945 saw an import balance of $3,000,000.

Foreign Trade.—Colombian imports in 1943 totalled $83,996,000 ($8.73 per capita) and exports $125,125,000 ($13 per capita); the United States supplied $46,283,000 of the imports and took $98,419,000 of the exports. Principal import items by value in 1943 were cotton and textiles, P35,619,000; iron and steel and their manufactures, P13,580,000; pharmaceuticals, P10,731,000. Principal export items by value in 1943 were coffee, P176,135,000; crude petroleum, P20,018,000. Colombia's basic coffee quota is 3,150,000 bags of 60 kilograms, second only to the Brazilian quota. The quota was increased in 1944–45 to 4,437,607 bags. Total coffee exports in the 1943–44 crop year were 4,827,087 bags valued at $92,417,087 as against 1942–43 exports of 4,987,641 bags valued at $95,656,617. Coffee exports to the United States in 1943–44 were 4,155,435 bags or 23.6 per cent of total United States imports of coffee. The end of the war was expected to stimulate coffee, petroleum, and gold exports. U. S. government officials estimated that within 10 years after the war was over Colombia would require United States machinery and equipment to a value of $241,000,000 with an additional $145,000,000 needed for replacement of worn-out and obsolete equipment; the largest item, it was anticipated, would be manufacturing equipment, but other important ones were expected to be power and communications, transportation, and building.

Principal Events.—President Alfonso López in a New Year's message called for an investigation of his administration and repeated his willingness to resign the presidency; a resignation had been rejected by the congress in May 1944. A special session of the congress met January 22 to consider constitutional amendments and other matters; a comprehensive series of constitutional amendments was approved and published February 12. The state of siege imposed July 10, 1944, following the kidnapping of President López at Pasto was officially lifted February 21. The administration Liberal party reorganized its directorate February 3 to include ex-President Eduardo Santos, Gabriel Turbay, who had resigned as ambassador to the United States late in 1944 to become a presidential candidate, Foreign Minister and former acting President Darío Echandía, and Julio Roberto Salazar Ferro. The government published a new land law February 6 prescribing terms and procedures for renting or tenant farming agricultural lands, authorizing farm loans, and providing potential expropriation procedures. The government on March 11 announced discovery of several hundred bombs and hand grenades hidden in the Bogotá cathedral and charged existence of a Conservative party plot to stage disorders a few days later in order to disrupt congressional elections scheduled for March 18. A small dynamite cache was also confiscated May 31. The March elections, held as scheduled, resulted in the choice of 80 Liberals, 46 Conservatives, and five Socialist Democrats (formerly Communists) for the Chamber of Representatives; Liberals won control of 13 of the 14 departmental assemblies; the popular vote was Liberal, 560,000; Conservative, 260,-000; Socialist Democrat, 25,750. Government forces on June 1 suppressed a mutiny in the Bogotá penitentiary led by Gen. Eduardo Bonitto and other army officers jailed for complicity in the 1944 Pasto *coup*. A tense political atmosphere in June preceded the opening of the regular session of the Congress, June 25. President López presented his resignation to that body July 19. It was accepted August 2, and Foreign Minister Alberto Lleras Camargo was inducted as provisional president August 7. The Liberal party convention on August 25 nominated Gabriel Turbay as its candidate for the presidency in the 1946 elections but supporters of Darío Echandía bolted the session and threatened a party split. The government set up a social security agency July 11. Alfonso Villegas Restrepo, noted jurist and founder of Colombia's leading paper, *El Tiempo* (Bogotá), died March 19.

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COLORADO, Mountain state, United States; admitted to the Union Aug. 1, 1876. Population (1940): rural, 532,540; urban, 590,756; total, 1,123,296. Land area, 103,927 square miles, divided into 63 counties. Principal cities, with 1940 populations: Denver, the capital, 322,-412; Pueblo, 52,162; Colorado Springs, 36,789; Greeley, 15,995.

Chief State Officers, 1945.—Governor, John C. Vivian; lieutenant governor, William E. Higby;

secretary of state, Walter F. Morrison; treasurer, Homer F. Bedford; attorney general, H. Lawrence Hinkley.

Judiciary.—Chief justice of Colorado's Supreme Court, Norris C. Bakke; associate justices, Haslett P. Burke, Benjamin C. Hilliard, William S. Jackson, William Lee Knous, Mortimer Stone, Wilbur Alter.

Legislature.—The General Assembly (Senate, 35 members; House of Representatives, 65) convenes biennially in odd years on the first Wednesday in January.

Education.—At last report (1943–44 school year), there were 1,955 public elementary schools, with 5,270 teachers and 146,404 pupils. Elementary school teachers earned an average yearly salary of $1,300 (est.). Public junior high schools numbered 47, with 805 teachers; there were 311 senior high schools with 2,124 teachers. Junior and senior high schools had a combined enrolment of 44,594 students. Junior and senior high school teachers earned an average yearly salary of $1,800 (est.). Education in Colorado is compulsory for all children between the ages of 8 and 16, inclusive. There are 3 teacher training schools in the state. Total state appropriation for public school education (1943–44), $2,196,678.77. State superintendent of public instruction, Mrs. Inez Johnson Lewis.

Finances.—Following is a statement of Colorado's finances for the fiscal year 1944–45, supplied by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$ 29,303,892.82
Receipts, 1944–45	76,196,462.19
Total	$105,500,355.01
Disbursements, 1944–45	70,068,593.61
Balance, beginning of fiscal year 1945–46	$ 35,431,761.40

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Production Preliminary 1945
Corn (1,000 bu.)	11,335	16,283	14,740
Oats (1,000 bu.)	4,578	5,452	6,698
Wheat (1,000 bu.)	16,658	19,137	33,861
Barley (1,000 bu.)	10,729	14,986	20,619
Rye (1,000 bu.)	583	586	828
Sorghums for grain (1,000 bu.)	1,295	4,746	3,600
Sugar beets (1,000 short tons)	1,900	1,427	2,100
Peas, dry field (1,000 bags)	143	326	279
Hay:			
Alfalfa (1,000 tons)	1,222	1,432	1,367
Clover and timothy (1,000 tons)	214	256	273
Tame (1,000 tons)	1,660	1,910	1,866
Wild (1,000 tons)	347	388	416
Beans, dry edible (1,000 bags)	1,574	2,088	1,909
Potatoes (1,000 bu.)	14,033	18,779	19,305
Apples (1,000 bu.)	1,554	2,002	1,275
Peaches (1,000 bu.)	1,553	2,112	2,372
Pears (1,000 bu.)	195	157	263
Cherries (tons)	3,559	5,340	2,040

COMINO. See MALTA.

COMMERCE. See sections on *Commerce* or *Trade* under UNITED STATES and various foreign countries.

COMMODITY CREDIT CORPORATION (CCC). This agency of government, created in 1933, has authority to buy, sell, lend upon, and engage in other activities with respect to agricultural commodities and foods. It has an authorized capital of $100,000,000 and may borrow, by the issuance of obligations guaranteed by the United States, not to exceed $4,750,000,000.

The corporation was made a part of the United States Department of Agriculture in 1939. In 1943 it became a part of the War Food Administration. On Jan. 1, 1945, the War Food Administrator effected a consolidation of several of the activities within WFA into an enlarged Commodity Credit Corporation which was made responsible for all lending, buying, selling, storage, transportation, subsidy, and price-support activities of the War Food Administration having to do with food and food facilities. It was responsible for all such activities in connection with the following unprocessed commodities: corn, wheat, cotton, tobacco, peanuts, rice, feed grains, wool, hemp, sugarcane, sugar beets and raw sugar, gum turpentine, gum rosin, soybeans, flaxseed, and cottonseed. It was also responsible for all such activities (including diversion) with respect to fruits and vegetables, livestock and livestock products, dairy products, poultry and poultry products, grain products, fats and oils, and other processed foods.

The War Food Administration was dissolved June 30, 1945, and the functions and activities of the corporation were integrated with those of other bureaus in the Production and Marketing Administration of the Department of Agriculture which began functioning Aug. 20, 1945. Since that time the corporation has continued to work to stabilize agricultural prices and improve the income of American farmers. The Commodity Credit Corporation is primarily engaged in price support activities. The Agricultural Adjustment Act of 1938, as amended, made loans mandatory to producers of cotton, corn, wheat, rice, tobacco, and peanuts and also contained a general authorization for the corporation to make loans on other agricultural commodities, including dairy products. As required by the Agricultural Adjustment Act of 1938, all such commodity loans to producers are made without recourse to borrower; that is, the corporation must look solely to the collateral for satisfaction of the loan. The Stabilization Act of 1942, as amended, directed the corporation to make loans on the basic crops of cotton, corn, wheat, rice, tobacco, and peanuts during the war and for two years after its termination at loan rates amounting to 92½ per cent of parity for cotton and 90 per cent of parity for the other basic commodities. "Parity," generally represents the price that would give the commodity a purchasing power to the farmer equivalent to its purchasing power in a base period, usually from 1909–14.

The CCC also carries out loan and purchase programs authorized under the terms of the act of July 1, 1941, as amended, which directed the Secretary of Agriculture to use the corporation's funds to support the prices of nonbasic agricultural commodities, the production of which had been expanded during the war at the request of the secretary of agriculture. Prices of these commodities are required to be supported at not less than 90 per cent of parity for the duration of the war and two years thereafter.

As of June 30, 1945, commodity loans outstanding under Commodity Credit Corporation programs amounted to $308,572,063.32. Of this amount, loans totaling $46,830,207.16 were held by the corporation and guaranteed loans in the amount of $261,741,856.16 were held by private lending agencies. Cotton loans amounting to $217,511,741.66, wheat loans amounting to $249,719,000.97, and corn loans amounting to $18,-

370,118.95, comprised the bulk of the total loans outstanding. During the year ended June 30, 1945, the corporation also made loans on barley, flaxseed, grain sorghums, peas, peanuts, potatoes, rye, soybeans, tobacco, naval stores, and miscellaneous seeds.

Inventories owned by the corporation on June 30, 1945, had a book value of approximately $1,201,034,292.30. Included were 3,859,961 bales of cotton valued at $345,877,186.79; 318,899,327 pounds of wool valued at $160,292,439.29; 69,157,072 pounds of tobacco valued at $35,087,597.81; and 103,728,460 bushels of wheat (including wheat pooled for the account of producers) valued at $153,669,750.82. As of June 30, 1945, commodities owned by the corporation included barley, corn, fats and oils, grain sorghums, hemp and hemp products, oilseeds and products, rye, turpentine, general commodities, and miscellaneous seeds.

The corporation is managed by a board of directors, of which the secretary of agriculture is chairman and the undersecretary of agriculture and the assistant secretary of agriculture are members. Other members of the board, who are also officials of the Production and Marketing Administration, are: the administrator of PMA; deputy administrator, PMA; assistant administrator for regulatory and marketing service work, PMA; director of price, PMA; and director, field service branch, PMA; and assistant administrator for fiscal and inventory control, PMA.

JOHN B. HUTSON,
President, Commodity Credit Corporation.

COMMONWEALTH FUND, The. This endowment, established in 1918 by Mrs. Stephen V. Harkness "to do something for the welfare of mankind," and later increased by gifts from the founder and from Edward S. Harkness, president of the fund from its inception until his death Jan. 29, 1940, now amounts to approximately $47,333,000. Appropriations in the year ended Sept. 30, 1945, were $1,644,216.90. Activities tending to promote or maintain physical and mental health accounted for three quarters of this total. More than $375,000 was appropriated for medical research. In medical education, fellowships were offered for advanced study; provision was made for visiting instructors in medical schools; aid was given to departments of preventive medicine and psychiatry, to teaching arrangements designed to promote interplay between medicine and psychiatry, and to various forms of postgraduate instruction for men in practice. Public health activities, designed to raise standards of rural service, centered in Tennessee, Mississippi, and Oklahoma. Fourteen rural community hospitals built or remodeled with aid from the fund were at work during the year; these hospitals stress opportunities for professional education as well as standards of medical, nursing, and technical services. Personnel shortages remained general and embarrassing. The Commonwealth Fund fellowships for British graduate students at American universities were suspended during the war, but fourteen fellowships for postgraduate study in medicine and public health were awarded to Latin-Americans. The fund published in the year eight new books of educational significance in its fields of operation. Since the beginning of the war the fund set aside more than $1,500,000 for war relief and other purposes related to war needs, including the rehabilitation of men discharged from the armed forces with psychiatric disabilities. The directors of the fund are: Malcolm P. Aldrich (president), William E. Birdsall, Phil W. Bunnell, Adrian M. Massie, Lewis Perry, Barry C. Smith, William E. Stevenson, and Thomas D. Thacher. Its offices are at 41 East 57th Street, New York 22, N.Y.

BARRY C. SMITH,
General Director.

COMMUNICATIONS. See ELECTRICAL AND ALLIED DEVELOPMENTS OF 1945; ELECTRONICS; FEDERAL COMMUNICATIONS COMMISSION; RADIO; TELEPHONE PROGRESS; TELEVISION.

COMMUNITY CHESTS AND COUNCILS, Inc. The national non-profit organization of community and war chests and councils of social agencies was organized in 1918 as a clearing house of information and to give service to the 21 chests then organized. A board of directors, an executive committee and departmental advisory committees composed of chest and council laymen and executives guide the organization's policies. It is financed by dues from its corporate members. In 1945, community chests and councils of social agencies in 438 cities were affiliated with the national organization on a voluntary membership basis.

A community chest is a co-operative organization of citizens and social welfare agencies. It has two chief functions: (1) raising funds each year through a co-operative appeal for the voluntary social and health agencies affiliated with it, and (2) promoting the social welfare and health of the community by co-ordinating existing services and planning more effective community welfare programs.

During the war, the great majority of community chests extended their scope to become "community and war chests." Community Chests and Councils, Inc., assisted in the organization and operation of the National War Fund, through temporary loans of staff, participation in policy-forming and committee work, and co-operative publications and activities. It also instituted quota and budget procedures for national war relief agencies included in the National War Fund, and in 1943 transferred these functions to the latter organization.

Of the 1,142 chests and councils in operation in August 1945 (820 chests and 322 councils), 784 chests and 303 councils were in continental United States, 4 chests and 2 councils in Hawaii, 29 chests and 17 councils in Canada, 2 chests in South Africa, and 1 chest in the Virgin Islands. Almost every city in the United States (except New York City, which has a limited joint financing organization) in 1944 had a community chest or similar plan of federated financing for its voluntary social services.

In 772 cities in 1944 more than 20 million contributions, totalling $221,272,950 were given to community chests and war chests to be used during 1945 for voluntary social work in their communities and for National War Fund agencies. This means that chests raised an average of more than $3 for every person in the population covered by the campaigns.

Officers of Community Chests and Councils, Inc., in 1945 were: honorary president, Gerard Swope; president, E. A. Roberts; vice presidents, J. B. Adoue, Jr., H. L. R. Emmet, Mrs. DeForest Van Slyck, and Harry P. Wareham; treasurer, Milton H. Glover; secretary, Robert P. Lane. Ralph H. Blanchard is executive director. The address of the association is 155 East 44th Street, New York 17, N.Y.

BARBARA ABEL,
Editor, Community Chests and Councils, Inc.

COMMUNITY FACILITIES, Bureau of. See FEDERAL WORKS AGENCY.

COMMUNITY TRUSTS. The philanthropic resources reported by 76 community trusts in the United States and Canada rose to an aggregate of $67,041,684 at the close of 1944, from a total of $57,135,194 at the end of 1943. The New York Community Trust with $15,871,557 and the Chicago Community Trust with $11,498,070 are the largest of these charitable trusts. Next in order of assets at Dec. 31, 1944 are the Cleveland Foundation, $8,624,214; the Boston Permanent Charity Fund, $5,953,107; and the Winnipeg Foundation, $3,561,989.

Disbursements by community foundations increased to $1,918,475 in 1944 from $1,739,619 in 1943. The largest outpayments were those in New York, $558,746 and Cleveland, $279,844. Chicago with appropriations of $268,852 and Boston with $256,775 ranked third and fourth in volume of outpayments.

New funds received in 1944 totaled $8,206,702. The most sizable additions were reported by The New York Community Trust, $4,650,638; the California Community Foundation (Los Angeles), $723,398; the Chicago Community Trust, $675,000; the Hartford Foundation for Public Giving, $500,000; and the Dallas Community Trust, $389,808.

Three new community trusts were created in 1944—in Columbus, Ohio; Spartanburg, S.C.; and Champaign, Ill.

RALPH HAYES,
The New York Community Trust.

COMPULSORY MILITARY TRAINING. See EDUCATION, REVIEW OF.

CONDON, John F., American teacher who figured as intermediary in the Lindbergh kidnapping case: b. New York, N.Y., 1860; d. there, Jan. 2, 1945. As "Jafsie," Dr. Condon delivered the $50,000 ransom in the Lindbergh kidnapping case.

Educated in the Bronx, Dr. Condon received his B.A. from the City College of New York in 1882. He taught in the New York public schools, later became professor of education at the College of New Rochelle, and eventually lectured at Fordham University. On March 7, 1932, he wrote the assistant editor of the Bronx *Home News,* offering to act as negotiator between the Lindbergh family and the kidnapers and to add $1,000 to the $50,000 reward previously posted by Colonel Lindbergh. It was in these classified "ads" that Dr. Condon first used the name "Jafsie," based on his three initials. On March 9, he received an answer from the kidnappers accepting the offer. Then followed the series of messages between him and the mysterious "John," and their eventual meeting in April at St. Raymond's Cemetery in the Bronx. When the kidnapper broke his promise to return the baby, Dr. Condon described him to the police in great detail. After the baby's body was found, he made every attempt to solve the crime at his own expense. His identification of Bruno Richard Hauptmann as the man to whom he had given the ransom money was an important factor in the state's case against Hauptmann.

CONGO, Belgian. See BELGIAN CONGO.

CONGREGATIONAL CHRISTIAN CHURCHES IN THE UNITED STATES, The. These churches reported as of Sept. 1, 1945 a total membership of 1,113,930, a net gain of more than 20,000 in the year. The number of accessions was 70,928 which is the largest number of accessions to the churches in many years. It is a significant fact that during war years, since the time of the Revolution down to the First World War, the churches suffered greatly in losses of members. But in the Second World War the churches made the largest gain of many years. The denomination reports 5,875 churches, a decrease of 16 in the year; 32 new churches were organized and 48 merged or closed, the trend is towards fewer but larger churches. As might be expected with so many young persons in national service or other war work, the church schools show a decrease in membership, with a total of 489,677, a loss of 14,556 a small decline considering the times.

The list of ministers totals 5,675, of whom 3,075 are pastors and 545 are in the chaplaincy or similar work. The withdrawal of this large number of ministers from the pastorate for the chaplaincy has not crippled the churches, for they have gone forward under the leadership of ministers recalled from other forms of service and from retirement for the emergency. The result is that the number of vacant churches shows an increase of only 46 for the nation. The figure for 1944 was 676 while in the First World War the number of vacant churches was 1,424, more than double what it is now.

In finances the churches have shown similar gains. For benevolences, the total for the year was $3,350,919, an increase of $436,608, while the amount contributed for home expenses was $17,467,525, an increase of $1,255,057. Pastor's salaries have been lifted above the amount of the preceding year by $100 per pastor.

The state conferences received an increase of $795,482 and hold investments of $4,337,697. The city societies income of $336,432, and funds of $2,559,588. The American Board of Commissioners for Foreign Missions, receipts of $1,145,756, and funds totaling $7,874,183. The Board of Home Missions, income of $1,436,673, and funds totaling $25,023,176. The pension boards income of $1,011,112, of which amount $407,168 came from the Unit Plan and reserve contributions and funds totaling $10,794,197. The Council for Social Action, income of $64,229. The General Council, income of $86,037, and funds of $68,374. The Committee for War Victims and Reconstruction raised $160,000, for denominational societies and $226,187 for nondenominational purposes, a total of $386,187.

The officers of the General Council for the present year are, moderator, Ronald Bridges, Tempe, Ariz.; minister and secretary, Rev. Douglas Horton, 287 Fourth Ave., New York 10, N.Y.; associate secretary, Rev. Frederick L. Fagley, 287 Fourth Ave., New York 10, N.Y.; treasurer, Mr. L. Nelson Nichols, 331 E. 71st St., New York 21, N.Y.; chairman of the executive committee, Rev. Arthur H. Bradford, Providence, R.I.

The next biennial meeting will be held at Grinnell, Iowa, in June 1946.

FREDERICK L. FAGLEY,
Associate Secretary, General Council, Congregational Christian Church.

CONGRESS OF INDUSTRIAL ORGANIZATIONS. See LABOR CONDITIONS IN THE U. S.

CONGRESS OF THE UNITED STATES. See under UNITED STATES.

CONNECTICUT, New England state, United States; one of the original thirteen states. Population (1940): rural, 551,080; urban, 1,158,162; total, 1,709,242. Land area, 4,899 square miles,

divided into 8 counties. Chief cities, with 1940 populations: Hartford, the capital, 166,267; New Haven, 160,605; Bridgeport, 147,121; Waterbury, 99,314; New Britain, 68,685; Stamford, 47,938.

Chief State Officers, 1945.—Governor, Raymond E. Baldwin; lieutenant governor, Wilbert Snow; secretary of state, Charles J. Prestia; treasurer, William T. Carroll; comptroller, John M. Dowe.

Legislature.—The state's General Assembly (Senate, 36 members; House of Representatives, 272) convenes biennially.

Education.—Public elementary schools (1944–45), 791; teachers, 5,011; average daily pupil attendance, 165,551; average yearly salary of elementary school teachers, $1,975. Public junior high schools, 36; teachers, 735; average daily student attendance, 17,726; average yearly salary of junior high school teachers, $2,359. Public senior high schools, 91; teachers, 2,619; average daily student attendance, 60,225; average yearly salary of senior high school teachers, $2,464. Education in Connecticut is compulsory for all children between the ages of 7 and 16, inclusive. There are 4 state teachers colleges. Total state appropriation for education (1944–45), $4,375,563.52. State commissioner of education, Alonzo G. Grace.

Finances.—The following statement of Connecticut's finances for the fiscal year 1943–44 is the latest available:

Balance in Treasury, beginning of fiscal year 1943–44	$ 36,739,411.39
Receipts, 1943–44	126,973,263.51
Total	$163,712,674.90
Disbursements, 1943–44	128,531,620.17
Balance, beginning of fiscal year 1944–45	$ 35,181,054.73

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	1,942	2,080	2,226
Oats (1,000 bu.)	142	108	132
Hay:			
Alfalfa (1,000 tons)	45	55	68
Clover and timothy (1,000 tons)	218	155	220
Tame (1,000 tons)	403	307	443
Tobacco (1,000 lb.)	20,189	23,368	23,482
Potatoes (1,000 bu.)	2,805	3,408	3,798
Apples (1,000 bu.)	1,364	1,523	533
Peaches (1,000 bu.)	106	129	99
Pears (1,000 bu.)	64	77	51
Grapes (tons)	1,300	900	600

CONSTITUTIONAL LAW. See LAW—*Section 4.*

CO-OPERATIVE ASSOCIATIONS. See FARM CREDIT ADMINISTRATION; FEDERAL DEPOSIT INSURANCE CORPORATION.

COPPER. With the war a thing of the past, in the future we can look forward to fuller information on the copper industry throughout the world. While as yet there has not been a sufficient lapse of time since the cessation of hostilities for more than a small amount of information to emerge from under the cloak of censorship, the difference has already made itself manifest, though as yet there is little detail outside of the Western Hemisphere.

United States.—The peak of war production of copper in the United States was passed in 1943, and the 1944 mine output showed a decline of 11 per cent. The salient features of the industry during the war years are shown in the following table, in thousands of short tons.

Although there were sizeable reductions in the copper recovered from domestic ores in 1944, these were offset by increases in returns from foreign ores, in secondary recovery, and in imports; the net result was that the copper available for use in 1944 did not differ appreciably from the total in 1943.

Data on 1945 operations are available only for the first eight months of the year. The decline which showed in the 1944 total began about mid-year, and output gradually lessened as pressure for war supplies eased off. The total mine output through October 1945 was 651,151 short tons, a reduction of 22 per cent as compared with 829,655 tons in the same months of 1944. The monthly totals have declined in 1945 from 67,707 tons in January to 57,178 tons in July, followed subsequently by slight increases. The indications are that the 1945 total will show about the same drop from 1944 as is indicated by the totals through October, or to slightly above the 1939 level.

Canada.—As in the United States, copper production in Canada started to decline about mid-year of 1944, but at a slower rate. Also, this was not a new development, as the Canadian output had been dropping intermittently since 1940. The 1944 total of 275,057 short tons was only 4 per cent below the 287,595 tons of 1943. Continuing into 1945, the total through October was 205,390 tons, 10 per cent less than in the same months of 1944. In 1944 about 10 per cent of the Canadian output was exported in ore, concentrates and matte, and 50 per cent as metal, leaving 40 per cent for domestic consumption. Total exports in 1944 were 163,222 tons, declining sharply to 107,000 tons in January–October 1945. Due to exports in ore and to low secondary recovery the Canadian smelter and refinery outputs ran less than the mine output, rather than more, as in the United States. The high values of other metals, especially nickel and zinc, associated with such a large percentage of the Canadian ores puts the country in a favorable position to compete for postwar markets.

Mexico.—Copper production has been decreasing since 1942, the mine output being 51,379 metric tons in 1942, 49,774 tons in 1943, and 41,302 tons in 1944, while smelter output was 44,729 tons, 43,013 tons, and 32,974 tons respectively.

	1939	1940	1941	1942	1943	1944
Mine production	728	878	958	1,080	1,091	973
Smelter production	712	909	966	1,088	1,093	1,003
Refinery production[1]	1,010	1,314	1,395	1,415	1,379	1,221
Domestic ores	705	927	975	1,065	1,082	974
Foreign ores	305	386	420	350	297	247
Secondary production	500	532	726	928	1,086	951
From old scrap[1]	287	334	413	427	428	457
From new scrap	213	198	314	501	658	494
Imports[1]	336	491	736	764	717	787
Exports	428	428	159	211	294	237
Available for use[1]	1,205	1,711	2,385	2,395	2,230	2,228

[1]Available for use includes refinery output, secondary from old scrap, and imports, less exports; secondary from new scrap is only a turnover of metal and statistically does not alter the total for use.

Chile.—When war supplies of copper in the United States began to catch up with demand in mid-1944, the effect was felt in other countries that were selling heavily in the United States, of which Chile was one of the leaders. This affected production, and mine output declined somewhat from the high levels of 1943 and 1942, being 487,600 metric tons, 509,378 tons, and 489,158 tons respectively. However, as had not previously been the case, smelter output was higher—490,441 tons, 489,320 tons, and 477,733 tons. Practically the entire copper output of Chile has been coming to the United States, and since the decline in nitrate production that has been under way ever since the First World War, copper has been the chief item of export. Consequently the cessation of war demand will have pronounced economic repercussions in the country. Formerly Chile was an outstanding low-cost producer, but during the war costs rose to a point where African copper will fare much better in competition for postwar trade to replace the decreased sales in the United States.

Peru.—Copper production has been declining slowly since 1940, the drop being about one quarter. Mine output in 1944 was 32,390 metric tons, as compared with 33,407 tons in 1943 and 43,965 tons in 1940. As with Canada, some ore is exported, so smelter output in the same years was 26,888 tons, 28,215 tons, and 33,678 tons.

Northern Rhodesia.—Slackening of war demand cut the 1944 production of Northern Rhodesia about 10 per cent below the 251,107 metric tons of smelter output made in 1943. Reductions in British purchases were heavier than those in the United States.

Yugoslavia.—The well known Bor mine and smelter, which had been the chief German source of new copper since mid-1940, was recaptured by Partisan forces in 1944. The planned demolition of the plant was prevented by the rapid advance of the Yugoslav and Russian forces, but sufficient damage was done to require three months to make the necessary repairs before resuming operation.

Other Countries.—From a number of other countries little has been learned beyond bare output figures, chief of which are the following:

	Output	1942	1943	1944
Cuba	Mine	8,916	6,405	6,584
Newfoundland	Mine	5,666	5,669	5,021
Bolivia	Mine	6,376	6,011	6,170
Spain	Smelter	11,590	10,952	10,590
Sweden	Smelter	12,000	13,600	14,500
Turkey	Smelter	8,242	9,715	11,050
South Africa	Smelter	23,877	22,150	22,600
Australia	Mine	24,500	27,200	31,300

G. A. ROUSH,
Editor, The Mineral Industry.

CORN. The Department of Agriculture on October 1, estimated the 1945 corn crop of the United States at 3,078,126,000 bushels, as compared with the 1944 crop of 3,228,361,000 bushels, and the 1934-43 ten-year average crop of 2,433,060,000 bushels. As usual, Iowa was the largest producer in 1945 with a crop of 529,296,000 bushels. Illinois was second with 413,345,000 bushels, and Nebraska was third with 265,298,000 bushels.

COST OF LIVING. See INFLATION AND PRICE CONTROL; LABOR CONDITIONS IN THE UNITED STATES—*Prices and Price Controls.*

COSTA RICA. The second smallest Central American republic, lying between Nicaragua and Panama and the Caribbean Sea and the Pacific Ocean. Its area is 19,238 square miles. Much of the area is mountainous; the most important topographic feature is the *meseta central*, a small highland plateau 3,000 to 4,000 feet in elevation, which is the economic and demographic center of the country. Population was estimated in January, 1945, to be 725,149; three-fourths of it is in the *meseta central*. About 80 per cent is of almost pure Spanish descent, 14 per cent is mestizo, four per cent Negro, and two per cent Indian. Aside from the considerable number of Negroes brought from Jamaica in the latter part of the 19th century, immigration has been slight. Chief cities are San José, the capital (pop., 76,178), Heredia (10,331), Alajuela (9,603), Limón (9,760), Cartago (9,667), Puntarenas (8,265). Costa Rica was, during the entire colonial period, a part of the Spanish captaincy general of Guatemala. Following independence from Spain in 1821, it became a part of the Central American confederation until 1839 and then became an independent republic. Its present constitution dates from 1871, and hence is the second oldest in Latin America, but it has been amended on numerous occasions, including a long series of amendments in 1943 establishing a section of social guarantees. The government is unitary and includes a president popularly elected for a four-year term, a unicameral legislature elected on a population basis, and a judiciary headed by a Supreme Court of Justice. Costa Rica is divided into seven territorial provinces. The president is Teodoro Picado, elected in February 1944.

Religion and Education.—Roman Catholicism is the prevalent form of worship although religious freedom prevails. Costa Rica has closer relations with the Catholic Church than do most other Latin American republics and the constitution states that to be the religion of the state. The country has one archbishop and one bishop.

Education is free and compulsory and under either the control or supervision of the government. Literacy is estimated at 82 per cent, second highest figure for any Latin American republic. The latest education statistics show 761 primary schools with 73,217 pupils, 49 intermediate schools with 7,251 pupils, and one university (National University, organized at San José in 1940) with 820 enrolled. Several normal and other special schools exist. A new school law, published Feb. 21, 1945, considerably tightened compulsory education requirements and reorganized secondary schools. The Department of Education subsequently organized a pre-school division with the aim of establishing a kindergarten in every school; it also emphasized school and home gardens and the development of teacher training by co-operation with the Inter-American Educational Foundation. A National Geographic Institute opened in January 1945, as a center for studies in geography, geodesy, and geophysics.

Communications.—Railway mileage is 408, of which some 67 miles belong to the United Fruit Company. Passenger traffic in the last pre-war year was approximately 800,000. Improved highway mileage is 771, in addition to which there are about 1,000 miles of plantation highways. The major highway project in recent years has been the Pan American Highway, construction of which in southeastern Costa Rica has been very difficult; a tributary road to the Pan American Highway was expected to be completed in 1945. A bond issue authorized August 8, 1945 for 7,000,000 colones (colón = 18 cents) included

3,000,000 for highway construction. Daily international air service operates. Pan American Airways in August 1945, proposed a new local airline to compete with TACA (Transportes Aéreos de Centro América). Vehicle registration in 1943 was 2,372 passenger cars, 350 busses, and 1,265 trucks. Costa Rica has 435 post offices, 295 telegraph offices employing 1,916 miles of line, and approximately 2,560 telephones. There were in 1943 a total of 24 broadcasting stations and about 25,000 receiving sets.

Production.—Costa Rica is primarily agricultural. The chief crops are coffee, bananas, and cacao; corn, beans, rice, sugar, potatoes, and fruits are subsistence crops. The Department of Agriculture in 1945 continued its work on soil analysis, erosion, mechanization of sugar growing, etc. A National Production Council was established by decree of Feb. 5, 1945, to stimulate agricultural production. The 1945 cacao crop was estimated at 110,000 bags of 150 pounds. Coffee production in the 1945–46 season was estimated at 369,074 bags of 60 kilograms (kilogram = 2.2046 pounds) as against 444,667 bags in the 1944–45 season. The 1944–45 cotton crop was estimated at 102,500 pounds of lint cotton. Plantation rubber and abacá have recently been grown under United States governmental stimulation and oil palms are being planted in increasing acreage. The principal forest products, in addition to rubber, are balsa, cedar, mahogany, and rosewood. The small mineral production involves chiefly gold, but also manganese and salt. Industrial production involves about 3,000 manufacturing establishments but these are almost all small-scale and their output value is not large. They include coffee and cacao processing plants, rice mills, sawmills, sugar mills, shoe factories, edible-oil extraction plants, and cotton textile plants.

Foreign Trade.—Total imports in 1943 were valued at $20,387,000 ($28.84 per capita) of which $10,667,000 came from the United States; total exports in 1943 were $12,431,000 ($17.58 per capita) of which $8,895,000 went to the United States. Costa Rica's basic coffee quota, according to the Inter-American Coffee Agreement, is 200,000 bags of 60 kilos. This was increased for the 1944–45 season to 281,946 bags. The final quota in the 1943–44 season was 263,644 bags, with shipments to the United States of 239,192 bags. Total exports during the crop year 1943–44 (October 1 through September 30) were 304,447 bags. Banana shipments in the first quarter of 1945 were 532,747 stems, an increase of 24 per cent over the same period in 1944. Easing of the shipping situation has facilitated export of bananas. Costa Rica's principal imports normally include metal products, railway materials, machinery, wheat flour, chemicals, petroleum products, and motor vehicles; shortages of supply have of course seriously interfered with those imports in recent years.

Finances and Economic Conditions.—Costa Rica's budgetary position has declined from 1939 to the present. Expenditures for 1944 were C67,017,945 and revenues C52,827,108. Budget proposals for the fiscal and calendar year 1945, as presented to Congress March 15, 1945, were estimated expenditures of C64,961,943 and anticipated revenues of C65,000,000. Expenditures in 1944 were heavily in excess of revenues and the same situation continued in the early months of 1945, with the result that some governmental wage and salary items were several weeks in arrears. Customs receipts, ordinarily a leading item of revenue, were seriously threatened by shortages of imports. The public debt March 31, 1945, was C231,681,569, including C147,885,120 external and C83,796,449 internal debt. Several bills were pending before the congress early in 1945 looking to reform of Costa Rica's fiscal and tax system. They would, if adopted, it was felt, make easier a settlement with holders of the country's external debt. A law approved August 14 reorganized the bureau of the budget, the general accounting office, and the treasury department. A bond issue authorized August 8 included C4,000,000 for governmental expenses. The circulating medium increased during the war years from C56,247,929 to C155,590,043. One result was that the cost-of-living index, which was 100 in 1936, was 108 by 1939, 189 at the beginning of 1945, and 193 in April. Governmental inability to control rising prices led to an unstable economic situation early in 1945. An office of economic defense was created March 28, 1945 to attempt to regulate prices, export quotas, and rationing. Shortages of staple foods were serious early in 1945. The government insurance monopoly announced Feb. 28, 1945, that C316,752,886.39 of insurance was in force as against C266,146,739 one year earlier.

Principal Events.—A tense political situation prevailed at the beginning of 1945 because of New Year's riots which President Picado charged were due to followers of ex-President León Cortés, although the latter denied anything but peaceful opposition to the administration. War Minister Rene Picado, brother of the president, resigned January 15 and the president announced he would fill the post himself. President Picado's decision to prevent ousting of Vanguardia Popular (formerly the Communist party) members from government positions as demanded by Conservatives was believed responsible for the cabinet change. Nevertheless, relations between the government and the Vanguardia Popular, which previously had given strong support, were strained at times in 1945. Ex-President Cortés told the press June 11 that he would not be a candidate for president in 1948 or participate in 1946 congressional elections because he had "no confidence in free election promises given by the Picado regime." Sessions of congress opened January 8 and May 1. Among important pieces of legislation considered were bills to tighten the naturalization laws (as recommended by the Committee for Political Defense at Montevideo), and restriction of commercial activity to Costa Rican nationals. The government on June 15 put into effect a new treaty of amity with China. On June 28 the government presented a deed of gift to U.S. Ambassador Hallet Johnson for land for a new embassy building. Ricardo Jiménez Oreamuno, 85, three times president, died Jan. 4, 1945.

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COTTON. According to the Department of Agriculture's October 1 estimate, the 1945 cotton crop of the United States amounted to only 9,779,000 bales of 500 pounds each as compared with the 1944 crop of 12,230,000 bales, and the 1934–43 ten-year average crop of 12,293,000 bales. This 20 per cent decline in production was attributed by the Agriculture Department to a 12 per cent decrease in acreage and a 11 per cent smaller yield. Texas, as has been true for a number of years, was the leading cotton producing state with an output in 1945 of

2,000,000 bales, a decline of 1,112,000 bales from the average crop of 3,112,000 bales picked in the period 1934–43. Mississippi was second in production with 1,670,000 bales in 1945; 1,937,000 bales in 1944; and an average of 1,677,000 bales in 1934–43. Arkansas was the third largest producer with 1,300,000 bales in 1945; 1,394,000 bales in 1944; and an average of 1,322,000 bales in 1934–43.

World Supply.—The world supply of cotton in 1944 was placed at 50,604,000 bales, of which 25,800,000 bales represented the carry-over for 1943, and 24,804,000 bales the new production. World mill consumption of cotton in 1944 was placed at 23,876,000 bales. The world carry-over in 1945 was estimated at 26,560,000 bales. World production and consumption figures for 1945 were not available.

Exports.—Exports of cotton from the United States in 1944 totaled 2,006,737 bales, including some cotton exported by the army. The United Kingdom took 643,116 bales; Spain, 257,778 bales; while 508,801 bales went to France. The latter figure, however, includes the exports by the army.

Consumption, United States.—The United States consumed 9,575,829 bales of cotton in the 1944–45 cotton year.

Prices.—The average price of cotton in the United States in September 1945, based on reports from 10 markets, was 22.50 cents per pound for Middling ⅞-inch staple. By December 6, however, the price had risen to an average of 24.38 cents a pound.

COUNCIL OF FOREIGN MINISTERS. See WORLD POLITICS.

CRABTREE, James William, American educator: b. Crabtree, Scioto County, Ohio, April 18, 1864; d. Washington, D.C., June 9, 1945. From 1917–35 Dr. Crabtree served as secretary of the National Education Association, during which period the membership grew from 7,300 to more than 200,000. He spent three years, from 1935–38, as acting general secretary of the World Federation of Education Associations, and was secretary of former President Hoover's advisory committee on education (1931–32). Dr. Crabtree was graduated from the Peru (Nebr.) State Normal School (1887), and received his B.S. degree from Bloomfield Scientific Institute (1890), and his B.A. and M.A. degrees from the University of Nebraska in 1908. He was superintendent of schools at Ashland, Nebr. (1889–95); state high school inspector for the University of Nebraska (1897–1904); president of Peru State Normal School (1904–10); Nebraska state superintendent of public instruction (1910–11); and president of River Falls (Wis.) State Teachers College (1911–17). Dr. Crabtree was the author of *Roll of Honor Word Book* (1899); *The Crabtree Speller* (1908); *The Canvasser and His Victims;* and an autobiography, *What Counted Most.*

CRAIG, Malin, United States Army officer: b. St. Joseph, Mo., Aug. 5, 1875; d. Washington, D.C., July 25, 1945. A distinguished soldier in the First World War, Gen. Malin Craig was chief of staff of the United States Army from October 1935 until his retirement in August 1939, during which time the army was modernized and greatly increased in strength and efficiency.

Graduating from West Point in 1898, General Craig fought in the Spanish American War with the 4th Cavalry. In 1900 he participated in the China Relief Expedition and then served in the Philippines (1900–01; 1907–09). He was graduated from the Infantry-Cavalry School in 1904, the Army Staff College in 1905, and the Army War College in 1910. On duty with the General Staff Corps in Washington, D.C., when the United States entered the First World War, he was promoted lieutenant colonel, transferred to the Field Artillery, and assisted in the organization of the 41st Division, of which he became chief of staff. He went overseas in the fall of 1917 and in January of the next year was detailed as chief of staff of the 1st Corps, in which capacity he helped map the strategy for operations at Champagne-Marne, Aisne-Marne, St. Mihiel, and Meuse-Argonne. After the armistice, he became chief of staff of the American forces at Coblenz, Germany, until 1919, when he was appointed director of the General Staff College in Washington, D.C. He was, at various times, as he rose to brigadier and then to major general, commandant of the Cavalry School at Fort Riley, Kansas (1921–23); in command of the coast artillery defenses of Manila and Subic Bay in the Philippines (1923–24); chief of cavalry of the War Department (1925); and assistant chief of staff (1926). He commanded the 4th Corps Area (1927); the Panama Canal Division and Department (1927–30); the 9th Corps Area (1930–35); and the Fourth Army (1933–35). Just prior to his appointment as chief of staff (Oct. 2, 1935–Aug. 31, 1939)—a position which carried with it promotion to full general—he served as commandant of the Army War College in Washington, D.C. General Craig emerged from retirement (1939) in September 1941 to head the secretary of war's personnel board, which passed on the issuance of commissions to civilians. He had received the Distinguished Service Medal and the Croix de Guerre with two palms and was a commander of the Legion of Honor and a Companion of the Bath.

CRANBERRIES. The 1945 cranberry crop of the United States was estimated by the Department of Agriculture at 634,100 barrels on October 1. This figure compares with the 1944 crop of but 369,700 barrels, and the 1934–43 ten-year average crop of 631,660 barrels. Of the 1945 crop, Massachusetts was credited with producing 470,000 barrels, Wisconsin with 70,000 barrels, and New Jersey with 45,000 barrels. In 1934–43 Massachusetts produced an average crop of 423,400 barrels; Wisconsin, 91,400 barrels, and New Jersey, 88,400 barrels.

CRAVEN, Frank, American actor and playwright: b. Boston, 1880?; d. Beverly Hills, Calif., Sept. 1, 1945. One of the beloved figures of the American theater and motion pictures, Frank Craven had been called "the best pipe and pants-pocket actor in the business." The son of John T. Craven, a prominent comedian of the preceding generation, Frank Craven made his first stage appearance as a child, at his mother's side, in *The Silver King.* He was 16 years old when he began playing in repertory in Philadelphia, Boston, Cleveland, and Detroit. New York theatergoers first knew him when he appeared in 1907 as Walter Marshall in *Artie,* but it was not until 1910 when he played James Gilley in *Bought and Paid For* that he achieved his first outstanding success. In 1914 he wrote *Too Many Cooks* and *This Way Out,* both of which enjoyed long runs in New York and on the road. For the producer, John Golden, he wrote such

successful plays as *The First Year, Spite Corner, New Brooms, The Nineteenth Hole, Salt Water,* and *That's Gratitude.* His last Broadway appearance was in Zoë Akin's comedy, *Mrs. January and Mr. Ex,* which opened at the Belasco Theater on March 31, 1944. Previously he had scored a success as the stage manager who served as the commentator in Thorton Wilder's Pulitzer prize-winning play, *Our Town,* which opened Feb. 4, 1938, and ran for 331 performances. Mr. Craven played the same role in the screen version. His recent motion picture appearances included *Dangerous Blondes, Jack London, Son of Dracula, The Suspect,* and *Colonel Effingham.*

CRET, Paul Philippe, American architect: b. Lyon, France, Oct. 23, 1876; d. Philadelphia, Sept. 8, 1945. One of America's most distinguished architects in the classicist tradition, Dr. Cret designed the Folger Shakespeare Library and the Federal Reserve Building in Washington, D.C., the Detroit Institute of Arts, the Delaware River Bridge in Philadelphia, the United States Memorial at Chateau-Thierry, and other notable structures. After attending the Lycée de Bourg and the École des Beaux Arts in Lyon, Dr. Cret studied at the École des Beaux Arts in Paris, where he was graduated in 1903. Coming to the United States that same year, he was appointed assistant professor of architectural design at the University of Pennsylvania, where he taught until 1937. During the First World War, he served in the French Army and then after 1917 with the French mission attached to the 1st Division of the American Expeditionary Forces. In 1940 the late President Franklin D. Roosevelt appointed him to the Federal Fine Arts Commission, in charge of consideration and approval of plans for public buildings. Dr. Cret had also been consulting architect to the American Battle Monuments Commission, a member of the architectural commission of the Chicago World's Fair in 1933, consultant to the board of design of the New York World's Fair in 1939, consultant for the United States Army Engineer Office in Pittsburgh, and since 1938 a consultant to the United States Navy Department.

CRETE (CANDIA). An island in the Mediterranean, situated at the entrance to the Aegean Sea. It is approximately 160 miles long, and from 7 to 35 miles wide, containing 3,235 square miles with a population (1938) of 441,687. The capital is Canea (pop. 26,604), and the chief city and center of trade is Candia (33,404).

Formerly under the rule of the Romans, Byzantines, Saracens, Venetians and Turks, its union with Greece was recognized by the other Balkan States by the Treaty of Bucharest in August 1913. On Oct. 31, 1940, British military forces landed on the island and proceeded to fortify it with air bases, forts, and heavy gun emplacements. On May 20, 1941, Germany invaded the island by sea and air, the brunt of the invasion being carried by an estimated 10,000 to 12,000 parachute troops which gradually overcame the Allied defenders when German control of the air had been won. German positions on the island were bombed by the Allies a number of times in 1943, and the air attacks were intensified in 1944. Allied forces landed in October 1944, and the invaders retired to the western end of the island. A tacit truce lasted until the armistice of May 8, 1945; but the surrender of 10,500 Germans to 500 British troops was not completed until May 26, in order to protect the invaders from massacre by the civilians. Besides murdering many inhabitants, the Germans completely destroyed 40 villages, rendering 68,195 inhabitants destitute.

CREWE, MARQUESS OF (ROBERT OFFLEY ASHBURTON CREWE-MILNES), English statesman and diplomat: b. London, England, Jan. 12, 1858; d. Leatherhead, Surrey, England, June 20, 1945. Leader of the Liberal Party in the House of Lords until 1944, when he resigned because of ill health and advancing years, Lord Crewe had a long and distinguished political and diplomatic career.

After attending Harrow, and Trinity College, Cambridge University, Lord Crewe in 1883 became assistant private secretary to Lord Granville, at that time secretary for foreign affairs; lord in waiting to Queen Victoria in 1886; and lord lieutenant of Ireland from 1892 to 1895. He served as lord president of the council (1905–08; 1915–16); secretary of state for the colonies (1908–10); lord privy seal (1908; 1912–15); and secretary of state for India (1910–15). Lord Crewe was British ambassador in Paris (1922–28), and secretary of state for war in 1931. He was created a marquess in 1911. Lord Crewe was an elder brother of Trinity House, chancellor of Sheffield University, and the holder of honorary degrees from Oxford and Cambridge. He published two books: *Stray Verses* (1889–90), and *Lord Rosebery* (1931).

CRIME AND PRISONS. There was a slight rise in adult crime in the United States during 1945. Some officials claimed that this represented a "crime wave." To buttress their contention, they cited certain figures. It was said, for instance, that "serious crimes had increased 19 per cent in October of 1945 over the same month of 1944."

This comparison is unfair. In 1944, we were at war. Millions of men were in the armed services and the adult crime rate was low. It rose, naturally, in 1945, when many of these men returned to civilian life. Interestingly enough, though, there is little difference between the crime rate of that year and that of 1940, when it was never contended that we had a "crime wave." But whether there will be one in the future—a question many people are now asking—depends upon two important factors:

(1) Will there be jobs for those who want to work? During depressions, thousands of unemployed, who under normal conditions would never steal, do so because of economic necessity.

(2) Will the rise in juvenile delinquency—which began soon after Pearl Harbor—be stemmed, and steps taken to remould young lawbreakers, the potential adult criminals? In many areas during the past few years, schools were closed due to a shortage of teachers; in others there was an utter lack of recreational facilities. Child labor laws were flagrantly violated so that thousands of youngsters were thrown into fields and factories instead of continuing their studies.

Equally alarming were reports which showed that children were neglected because their mothers engaged in war industries. However, with the termination of hostilities and a subsequent reduction in the number of female war workers, this will no longer be a vexing problem. Furthermore, some communities are now taking steps to combat delinquency by increasing recreational facilities, opening youth centers, and establishing crime prevention bureaus. And

in San Francisco, a school for parents of delinquents was set up. Those parents were taught how to understand their children and how to help them. This project was described as "highly successful" by local authorities.

On July 8, 1945, Robert P. Patterson, then under secretary of war, issued a report concerning offenses by American soldiers against civil or military law. The number of such offenses was very low.

In 1944, only about 18,000 soldiers were convicted by general courts-martial. And in 1945 only 33,519 were in confinement in the United States or overseas. This, the report points out, represents the total number from the ten million men who have joined the army since the Selective Service Act was passed in 1940. It also includes a few still serving under sentences prior to 1940.

Of the 4,182,261 American soldiers who served in the European theater of operations from January 1942 until June 1, 1945, only 10,289, or less than one in 400, were sentenced to confinement by general courts-martial.

Every attempt is made to rehabilitate all army prisoners. Minor offenders who receive sentences of six months or less are placed in post guardhouses. Prisoners convicted by general courtsmartial, with sentences over six months, are placed in any one of three types of institutions: (1) rehabilitation center, (2) disciplinary barracks, (3) federal penitentiary or reformatory. The aim of the army's prison program is "to restore to honorable status in the Army all prisoners, who give evidence of their fitness for further service, and to provide, for those to be discharged because of unfitness, a program of educational vocational training which will help them to meet their obligations as citizens."

Due to a shortage of vital materials, no new buildings were erected in any prisons in 1945. However, all federal prisons and, with few exceptions, state prisons have aided in the war effort. Inmates purchased war bonds, gave blood to Red Cross banks, volunteered to act as "guinea pigs" to the cause of science, and manufactured millions of dollars worth of matériel for the armed services.

With the termination of the war, the matter of penal industries is occupying the profound attention of wardens and other officials. Idleness in prisons, rampant before Pearl Harbor, had a deteriorating effect upon inmates. During the war, when they were allowed to engage in useful endeavors, their morale increased. Therefore, penal industries are being continued in most of the states that previously had none. Furthermore, some prison farms are being enlarged. This will mean jobs for a number of inmates—a vital necessity for their rehabilitation.

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CRIMINAL LAW. See LAW—*Section 5.*

CRIPPS, Sir (Richard) Stafford, British political leader: b. April 24, 1889. Professionally a brilliant and able lawyer, politically the stormy petrel of the British Labour Party, Sir Stafford Cripps was appointed president of the Board of Trade in the Attlee Cabinet on July 27, 1945, after Labour's sweeping victory in the first general election held in Great Britain since 1935. Sir Stafford figured prominently in world news in the spring of 1942, when he headed a British mission to India, in an unsuccessful effort to negotiate settlement of the differences between Great Britain and India's political factions. From February-November 1942, he was a member of the Churchill War Cabinet, leader of the House of Commons, and lord privy seal; he was relieved of these offices in the latter month, and appointed minister of aircraft production. A member of Parliament since 1931, Sir Stafford was expelled from the Labour Party in 1939 for organizing a popular front movement. He then cast his lot with Churchill, and when the latter became prime minister, was appointed ambassador to Russia. He is author of three books: *Why this Socialism?* (1934), *The Struggle for Peace* (1936), and *Democracy Up-to-date* (1938). In 1941, Eric Estorick published his biography of Sir Stafford—*Stafford Cripps: Prophetic Rebel.*

CROP INSURANCE. See FEDERAL CROP INSURANCE CORPORATION.

CROW, (Herbert) Carl, American journalist and author: b. Highland, Mo., Sept. 26, 1883; d. New York City, June 8, 1945. After several years work as a journalist in the United States, Mr. Crow went to China in 1911 and soon became associate city editor of the *China Press* in Shanghai; in 1913 he went to Tokyo as business manager and later as acting editor of the *Japan Advertiser,* also serving as Tokyo correspondent of the United Press. He returned to the United States in 1914, but during the First World War, went back to China as Far Eastern representative of the Committee on Public Information (1916–18). After the armistice he founded and edited the Shanghai *Evening Post,* and became the proprietor of an advertising agency in that city (1919–37). He returned to the United States in 1937, revisited China in 1938, and spent the autumn of 1940 in South America. He served as special assistant to the director of the Office of War Information from 1941 to 1943.

Among Mr. Crow's books are *Travelers' Handbook for China* (1912); *America and the Philippines* (1913); *Japan and America* (1915); *Four Hundred Million Customers* (1937); *Master Kung* and *I Speak for the Chinese* (both 1938); *He Opened the Door of Japan* (1939); *Meet the South Americans* (1941); and *China Takes Her Place* (1944).

CROWN, James Evans, American newspaperman: b. Catlett, Fauquier County, Va., Aug. 11, 1873; d. New Orleans, La., Jan. 10, 1945. A member of the staff of the New Orleans *States* since 1916, Mr. Crown was known for his newspaper crusading on behalf of "clean government." He was called "Major" Crown by the late Senator Huey P. Long, whom he helped into office and whose regime he later helped to crush. Purchased in 1933 by the *Times-Picayune,* the New Orleans *States* published in the spring of 1939 a story exposing the Louisiana scandals which broke the Long machine, directed since his death by Governor Richard W. Leche and others. Mr. Crown's editorials were influential in helping elect Governor Sam Jones' reform ticket.

CUBA. With an area of 44,164 square miles, including island possessions, and a population (official census, 1943) of 4,778,583, Cuba is about 780 miles long, averages 59 to 60 miles wide, and is the most strategically and commercially important West Indian republic. Havana, the capital (population, 1943 census, 676,376, including rural *municipios*), is the govern-

mental center for 6 provinces, which include 7 cities of more than 75,000 population. Approximately 73 per cent of the people are white, mainly of Spanish descent, and the remainder are of Negro or of mixed blood. An excellent climate (80° F. average in summer, 70° F. in winter), extremely fertile lands, valuable forest reserves, and rich mineral resources constitute the natural wealth of Cuba. Sixty per cent of the land is flat to gently rolling, and 40 per cent is rugged hilly to mountainous, about half suited to cultivation. Most of the mountains are in the east in the Province of Oriente, the Sierra Maestra range rising 7,872 feet. Discovered by Columbus (Oct. 28, 1492), Cuba was under Spanish control (except for 1762–63 British occupancy) until the Spanish American War brought separation in 1898. The United States influenced Cuban affairs through intervention under the Platt Amendment until May 29, 1934, when the amendment was abrogated by treaty, leaving Cuba completely independent.

Government and Politics.—Cuba's new constitution, effective Oct. 10, 1940, included broad social guarantees and individual rights, extended women's suffrage, and established a semi-parliamentary government. Organization was based upon a unitary system with popular election of the president, vice president, and members of the Senate and House of Representatives, but although the constitution accepted the principle of separation of powers, it also made the premier and the President's Council of Ministers responsible to Congress through interpellation and vote of censure. In May 1942 the first official interpellation took place, but the method of parliamentary government has not greatly increased congressional control over the executive.

Dr. Grau San Martín, elected to the presidency on June 1, 1944, began his administration with considerable popular support. During 1945, however, he faced developing opposition. His own political party—Partido Revolucionario Cubano (Auténtico)—criticized his cabinet, advisers, and army appointments. Some groups resented his accepting Communist support, and others blamed him for shortages of food, the black market, and wartime restrictions. President Grau silenced some criticism, however, by earmarking $50,000,000 for public works. In mid-March the government broke up a plot headed by ex-Colonel José E. Pedraza to kill the president. Of the 41 suspected plotters seized by the government, 14 were released on April 6. Pedraza and 5 others were sentenced to one year of imprisonment. On April 24 Enrique Enríquez, chief of the Secret Service of the Presidential Palace, was assassinated by terrorists. The suspected revolutionists, however, were released from custody early in June. The domestic political scene was disturbed throughout the year by conjectures as to whether former-President Batista would return to Cuba and re-enter the political arena. Throughout the year Cuba continued a policy of international co-operation. By the second quarter of 1945, Cuba had contributed 20,000 tons of sugar to UNRRA.

Agriculture and Industry.—The severest drought in 86 years was mainly responsible for a sugar crop 30 per cent smaller than 1944. Rains broke the eight-month drought on June 21, but early figures for the year's sugar crop indicated only 3,924,000 short tons of raw sugar and 195,000,000 gallons of blackstrap molasses. In June, the Commodity Credit Corporation offered to purchase the 1946 sugar crop at 3.45 cents per pound raw sugar F.O.B. Cuban ports, the blackstrap molasses prices to be the same as those of 1945. Cuban sugar interests, however, deferred until more definite knowledge of the size of the 1946 sugar crop could be obtained. The drought retarded the 1946 crop by two months. Manuel Casanova, president of the Cuban Sugar Institute, openly sought an assured sugar market in the United States, declaring that Cuba wanted a guaranteed annual quota. The drought reduced the tobacco, corn, rice, and peanut crops below those of 1944. Producing only about 50,000,000 pounds of milled rice, from October 1944 through May 1945 Cuba received 263,400,000 pounds of rice from the United States and about 47,700,000 pounds from Ecuador and Chile. Coffee production was down so low the government prohibited further exportation. Henequen fiber was reduced 25 per cent. In the first 4 months of 1945, an estimated 745,000 bunches of Johnson or Gros Michel bananas were exported as compared with 666,000 for the corresponding period in 1944. Drought and disease (sigatoka), however, reduced the size and quality of Cuban bananas. The dry weather lowered milk production for the first half of 1945 to only about two-thirds of the output for the corresponding period in 1944. The total output of condensed and evaporated milk for the first quarter of 1945 dropped to 71,350 cases, a decline of 35 per cent from 1944. The 600,000 pounds of butter produced during the first 5 months compared unfavorably with the total of 2,600,000 pounds for the 12 months of 1944. The pineapple crop, however, equaled the 1944 crop of 2,482,000 crates, with about 73,500,000 pounds for export.

Alcohol production for the first 5 months was 26,150,000 as compared with 21,299,839 gallons in the same period in 1944. Cuba produced 3,790 tires in June. The cost of living rose exceptionally in the second quarter of 1945. Retail food price indexes of the Ministry of Agriculture increased from 166 for Havana and 180 for the 30 city average in mid-March to 189 and 200 respectively toward the end of June. A price spiral and food shortages led to labor problems. One three-day strike involved 10,000 agricultural, industrial and railroad workers. Salaries and wages for the first 4 months of 1945 were about $122,000,000 as compared with slightly under $100,000,000 for the comparable 1944 period. Merchandise sales for the first 2 months were $215,370,000 as against $175,496,000 a year previous.

Commerce.—Exports for the first 4 months showed substantial increase over 1944. Export and import figures for the January-April period were $251,793,000 as compared with $205,580,000 earlier—$179,559,000 exports and $72,234,000 imports as against $138,823,000 and $66,757,000 in 1944.

Transportation.—Cuba was the host for the first International Air Transport Operators Conference. Legislation was passed creating a civil aeronautics authority, and important refinancing by the Expreso Aéreo Inter-Americana was concluded. The latter company applied for a permit to establish a New York-Havana express and passenger service. Regular night flights between Havana and Miami were inaugurated by Pan American Airways on June 27. British and Swedish general cargo ships resumed service. The earnings of the railroads through the first 5 months declined from $16,857,517 in the 1944 period to $15,778,993 in 1945.

Finance.—Budget collections for the period Jan. 1–July 23, 1945 reached the all-time high of 85,228,143 *pesos,* an increase of 11,913,885 *pesos* compared with the equivalent period in 1944. This was remarkable because 19 taxes were either abolished or reduced in October 1944. The United States Treasury renewed its stabilization agreement with Cuba for 4 years beyond June 30, 1945, agreeing to sell gold to Cuba on 120 days' credit provided the outstanding overdraft was not in excess of $5,000,000 at any one time. Under a decree in June, Cuba was permitted to purchase an additional $50,000,000 in gold bullion, which will give the country $200,000,000 in earmarked gold in the United States.

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CURACAO, kōō-rä-sä'ō. One of two "Overseas Territories" of the Kingdom of the Netherlands (the other being Surinam), consisting of two groups of islands in the West Indies about 500 miles apart. The first three islands named in the following list comprise the group lying off the Venezuelan coast; the remaining three are in the Leeward Islands east of Puerto Rico:

	Square Miles	Population July 1, 1943
Curaçao	172.5	73,839
Aruba	69.9	36,064
Bonaire	111.9	5,725
St. Martin[1]	13.2	2,337
St. Eustatius	11.8	1,229
Saba	4.8	1,018
	384.1	120,212

[1] The southern part only belongs to the Netherlands; the northern part belongs to France.

Curaçao became the property of the Netherlands in 1634 as the result of the defeat of Spain, and it has remained a Dutch possession ever since except for a few years during the Napoleonic era, when it was in the possession of England. It is administered by a governor assisted by a council composed of a vice president and three members nominated by the queen of the Netherlands. The legislative assembly of Curaçao is called "Staten" and consists of 15 members—10 elected by the voters and 5 nominated by the governor. Willemstad (pop. Dec. 31, 1942, 33,062) on Curaçao, is the seat of government. The other islands are administered by officials called *gezaghebbers,* nominated by the governor. A greater degree of postwar autonomy was indicated in December.

Dutch is the official language of the colony, though Spanish and English are also spoken. Furthermore a native language called Papamiento has evolved. The religion of the majority is Roman Catholic.

Finances.—Revenue is derived from import, export and excise duties, taxes on income, land, etc. The budget for 1944 estimated revenues at 24,954,000 guilders and expenditures at 24,942,000 guilders.

Production.—The chief products of the territory are refined oil, straw hats, salt and phosphate of lime. The chief industry is oil refining. The refineries located on Curaçao and Aruba are subsidiaries of Royal Dutch Shell and the Standard Oil Company of New Jersey. Canadian mining interests in 1945 received a concession from the government for exploitation of gold deposits on Aruba, which have been mined for about 120 years, but it is Aruba's petroleum refinery, the largest in the world, that has enabled the local population to attain the highest standard of living in the Caribbean area. Crude petroleum refined on Curaçao and Aruba amounted to 139,619,000 barrels in 1944. Other products include maize, cattle, pulse, beans, sugar, and cacao.

Transportation.—Public transportation, which had been extremely unsatisfactory, was improved somewhat in 1944 and 1945 by the establishment of a regular bus service on the islands of Curaçao and Aruba. KLM (Royal Dutch Air Lines) and Pan American Airways continue to operate regularly in and out of the islands, and in 1944 the New York-Curaçao service of the Royal Netherlands Steamship Lines was resumed. Shipping between Aruba and North and South American ports has increased. In 1941 a total of 10,178 ships called at Curaçao and Aruba.

Foreign Trade.—Exports from Curaçao and the other islands in the group in 1943 were valued at 298,000,000 guilders and imports at 345,000,000 guilders. The export trade is made up largely of petroleum and petroleum products. Exports of the latter from Aruba in the first quarter of 1945 were 8 per cent higher than in the corresponding quarter of 1944, while the total petroleum exports of 1944 increased 32 per cent over the exports during the previous year. Curaçao's imports are made up largely of foods, clothing, furniture, and other household commodities. It also imports rather large quantities of tobacco and tobacco products. In 1943 imports of tobacco totaled 10,014,700 cigars, 1,310,485,000 cigarettes and 66,132 kilograms of other tobacco manufactures.

CURTIN, John, Australian statesman: b. Creswick, Victoria, Australia, Jan. 8, 1885; d. Canberra, Australia, July 5, 1945. Prime minister of Australia since October 1941, John Curtin led the commonwealth through days of threatening Japanese invasion and, with Gen. Douglas MacArthur, supreme commander of Allied forces in the Southwest Pacific, converted the continent into the greatest Allied base of operations during the early years of the Pacific war.

After attending state schools, Curtin worked in turn at a printing shop, a pottery works, and a canister factory. In his early twenties, he developed an interest in the Australian Labour Party, which first became a political factor in 1904. He was secretary of the Victoria branch of the Timber Workers' Union from 1911 to 1915; editor of the *Westralian Worker,* the official Labour organ for Western Australia, from 1917 to 1928; and represented Australian workers at the League's International Labour Conference in 1924. He served in the House of Representatives of the federal parliament from 1928 to 1931, and from 1934 to 1941. Elected Labour Party leader in October 1935, he automatically became leader of the Opposition in Parliament. He also was a member of the Commonwealth Royal Commission on Family Allowances (1927–28); of the Joint Committee on Public Works (1929–31); state advocate for the government of Western Australia to the Commonwealth Grants Commission (1933–35); and since October 1940 a member of the Australian Advisory War Council.

Curtin became prime minister and minister of defense co-ordination in October 1941 after the defeat in the House of Representatives of the coalition government of Australia's two conservative parties, the United Australia Party and the Country Party. Shortly after Pearl Harbor,

he announced that Australia placed her chief reliance in the United States and that she refused to regard the war in the Pacific as a side issue to the European war. He began at once to put the country on a drastic wartime basis and to increase war production. Curtin's close friendship and co-operation with General MacArthur, who arrived in Australia in March 1942, was of greatest value to the Allied war effort in the South Pacific. In June 1943 Curtin won a non-confidence vote in the House by a majority of one, after criticism of his domestic policies. He then called for a general election which gave him a majority in Parliament unprecedented in the history of the Labour Party. In April 1944 he conferred in Washington with the late President Roosevelt on war and postwar problems in the Pacific, and early the following month, he attended the London Conference of Dominion Prime Ministers.

CYPRUS. An island colony of Great Britain, situated at the eastern end of the Mediterranean, about 40 miles off the mainland of Asia Minor. From southwest to northeast, it is about 148 miles long; its width varies from 40 to 15 miles. The area is 3,572 square miles, and the population in 1943 was estimated at 393,249, most of the people are Greeks, the remainder comprising chiefly Turks, Maronites, and Armenians. Nicosia (pop. 29,399) is the capital, and the principal ports are Limassol (17,630), Larnaca (14,220), and Famagusta (13,331). Administered by Great Britain since 1878, Cyprus was annexed in 1914 and became a colony in 1925. The governor (Sir Charles Campbell Woolley appointed Sept. 20, 1941) is assisted by an Executive Council of seven members (two of them unofficials) and an Advisory Council composed of the members of the Executive Council together with five Christian and two Moslem representatives of the community. The 1945 budget estimated revenue of £2,770,000 and normal expenditure of £2,000,000, plus expenditure of £1,800,000 for war purposes. Most of the inhabitants are members of the Independent Cypriote Church, a self-governing body in communion with the Orthodox Eastern Church; a considerable minority are Moslems, and other religious communities are Maronites, Armenians, and Anglicans. A separate educational system exists for each religion, and while elementary schools are under government control, there is an advisory board for each religion. In 1943–44 there were 687 elementary schools with an enrolment of 53,293 pupils; secondary schools numbered 28. The chief agricultural products are wheat, barley, oats, vetches, olives, carobs, potatoes, and onions. Vineyards are extensive, and cotton is also cultivated. There are large numbers of goats on the island, and lesser quantities of cattle, sheep, donkeys, horses, and mules. Gold and copper have been mined since ancient times, and other minerals of economic importance are asbestos, chrome iron, gypsum, and terra umbra. Cyprus silk is considered to be the finest in the Middle East; the government has been encouraging the planting of mulberry trees with the object of doubling the silk output. Wines and olive oil are produced, and during the war pottery making was developed. Soap making has expanded to the point where the island is now completely independent of imports, and industries newly established in wartime include the manufacture of plywood, cotton spinning, and woolens and agriculture implement manufacture. Exports in 1943 were valued at £2,187,067, and imports at £2,592,389, the latter including foodstuffs, textiles, and petroleum products. Port facilities are poor, owing to the lack of natural harbors. There are 886 miles of all-weather highways, and 1,716 miles of feeder roads. A railroad from Famagusta runs by way of Nicosia to Kalokhorio, a distance of 71 miles. The island is on the route of British air transport services.

CYRENAICA. See LIBYA.

CZECHOSLOVAKIA. The origin of the Czechoslovak Republic was due to the First World War. The Czechoslovak Declaration of Independence was proclaimed in Washington, D.C., on Oct. 18, 1918, by the founder of Czechoslovakia, Dr. Thomas G. Masaryk (mä'sä-rik). The Czech National Council seized power in Prague on Oct. 28, 1918 on the basis of the Washington Declaration and the temporary Czech government was formed in Paris on October 14 and recognized by the Allies. The representatives of the new states, including the Slovaks, formed the Revolutionary Assembly which, on Nov. 14, 1918, deposed the Hapsburgs, proclaimed a republic, elected Masaryk president, and set up a Cabinet with Karel Kramář (kra'märsh) as premier and Dr. Eduard Beneš (q.v.) as foreign minister. The new state was composed of Bohemia, Moravia, Silesia, Slovakia and Carpathian Ruthenia (Russia). The republic's two decades of independence were characterized by prosperous progress and democratic practices. But Hitler decided in May 1938 to dispose of the Czechoslovak problem in his own way. Thus, while professing allegiance to his country, Konrad Henlein, head of the Sudeten-deutsche Partei (later, Reichskommissar for the Sudeten areas after German occupation in October 1938), was taking orders from Hitler, whose demands grew bolder as the spring and summer of 1938 progressed. The more concessions granted by President Beneš, under pressure from London and Paris, the more blatant the Sudeten Nazis became. The crisis was not settled, however, until Germany had dispatched a large army to the Czechoslovak frontier, and Mussolini, appearing in an unusual role as peacemaker, persuaded Hitler to agree to a four-power conference at Munich on September 29. At this momentous gathering, attended by Hitler, Mussolini, Daladier, and Chamberlain, it was decided to yield the Sudetenland to Germany. The Czechoslovaks were not even consulted. The State of Czechoslovakia was rendered defenseless and the German "Drang nach Osten" became a reality.

The Munich surrender of September 29 and the Vienna award of Nov. 13, 1938 hacked from Czechoslovakia 14,656 square miles, reducing her area from 54,245 sq. mi. to 39,589 sq. mi. and her population from 14,729,536 to 9,983,536.

The final blow fell on March 14, 1939, when Germany took the country and called President Hácha, the successor to President Beneš, to Berlin, to sign away Czechoslovakia's independence. German troops entered Prague even before Hácha returned home. Hitler declared Bohemia-Moravia a protectorate. The Slovak Parliament refused on March 14 to vote the separation from the Czechs but the Nazi threats forced it to proclaim the independence of the country. The creation of a separate Slovak state separated the Ruthenians from the Czechs, and the provincial government had to proclaim its independence also; but after 24 hours of independence, Hungarian troops invaded the territory and on March 16 Premier Teleki announced the incorporation of Ruthenia in Hungary. On March 8, 1939 Hit-

ler signed a treaty with Tiso at Vienna, legalizing German military occupation of Slovakia and undertaking to "protect" it also. Special political status was reserved for the small German minority of about 100,000 and a German undersecretary of state was created. In August 1939 the development of the Polish-German crisis brought an announcement that "owing to the existing situation" German forces had taken military possession of the state. The fiction of the independence of Bohemia-Moravia and Slovakia was continued, but gradually given up. The protector's office, a vast and complex apparatus with 16 divisions, became, in fact, the exclusive source of legislative and administrative power of the Protectorate. A policy of denationalization was put into effect by sending the Czech workers to the Reich and their children to German schools; the property of the Czechs and Jews began to be confiscated and expropriated by devious means. Germans from the Baltic States were resettled around Prague, breaking up Czech compact settlements. Slovakia's fictitious independence was expressed in a new Slovak Constitution of July 1939, describing the country as a Christian National Republic and permitting the existence of only one party, Hlinka's former autonomists. As Bohemia-Moravia was more and more deprived of liberties, property and cultural possessions, terrorism and sabotage ran rife and thousands of Czechs were executed. Some 30,000, from Cabinet ministers to private soldiers and students, escaped abroad; after the defeat of Poland, some 10,000 Czechoslovaks fought in France, and others joined the Allies' armies in Britain and the Near East, and Yugoslavia's partisans. On May 27, 1942 a bomb was tossed into the automobile carrying Reinhard Heydrich, deputy Gestapo chief known as "Heydrich the Hangman," and in revenge, the Germans exterminated the little village of Lidice and its inhabitants. Meanwhile, former President Beneš had started organizing another revolutionary movement (as in the First World War) in America and England. On Aug. 5, 1942, the British government declared that it no longer considered itself bound by the terms of the Munich agreement; on October 28, Washington recognized Dr. Beneš as president of the Czechoslovak Republic, and the Czechoslovak government in London as an Allied government possessing full authority. Beneš' basic program was the recreation of the pre-Munich Czechoslovakia. Final recognition to the Beneš government-in-exile was extended by President Roosevelt's telegram on Oct. 28, 1942. In May and June of 1943 Beneš paid an official visit to the United States, addressing both Houses of Congress.

A new treaty of friendship, mutual assistance and postwar co-operation was concluded between Czechoslovakia and the Soviet Union on Dec. 12, 1943 (supplementing the Czechoslovak-Soviet agreement of July 18, 1941).

In 1944 underground and open resistance against the Nazis was steadily growing. Allied bombers attacked Plzeň and seven great oil refineries in the brown-coal region of northwestern Bohemia; the great Apollo Refinery in Bratislava was bombed three times. The Beskid mountains in eastern Moravia became the hideout of strong armed units which blew up main railway lines at intervals, burned German army food stores and stole arms from small German garrisons. Armed units of Slovaks also carried on sabotage work. The Slovak division in Pescary mutinied after hearing General Alexander's appeal to Italian Partisans when the grand offensive was launched below Rome. There were mass desertions of Slovak soldiers of the 1st Slovak Infantry Division to the Red Army during the battle of Melitopol. On Aug. 12, 1944, the Slovak puppet government had to proclaim martial law throughout Slovakia after patriots had clashed with German troops retreating from Poland through the Carpathian passes and had attacked German military transport and supply dumps; a day later, František Němec, Czechoslovak Minister of Reconstruction, and Gen. Rudolf Viest, were appointed to go to Moscow as the delegates of the Czechoslovak government for the administration of liberated Czechoslovak territories. (The Red Army had reached the frontiers of Czechoslovakia on April 8.) The London and Moscow exhortations to the Slovak people to organize national committees and partisan groups led to an armed uprising at the end of August; officers of the Czechoslovak Army had been dropped by parachute to take command and kept in constant touch with London by secret radio. On August 29 the German High Command ordered the military occupation of all Slovakia. Fighting weapons were delivered by air to the partisans. On September 8 the State Department announced that the United States had notified the German government that the Czechoslovak forces fighting on the territory of the republic were a regular army of the United Nations and military conventions were to be observed in the treatment of prisoners and wounded. On August 29 the garrison at Báňská Bystřica proclaimed its allegiance to the Czechoslovak Republic. Under the shock of the widespread uprisings, Vodca (Führer) Tiso accepted, on September 5, the resignation of Béla Tuka as prime minister, and appointed his brother, Dr. Stefan Tito, a former judge, as premier and minister of foreign affairs and justice. The First Czechoslovak Army Corps, formed in Russia, fought its way through the Dukla Pass in the Carpathian Mountains from Poland and captured Viší Komárnik, the first town in Czechoslovakia to be freed from German rule, on October 6. The revolt which the Slovaks started in their mountainous country at the end of August, received help from outside. Two squadrons of British-trained Czechoslovak fighter pilots dropped into partisan-held air fields. Eight thousand Czechoslovak Army men parachuted in from Russian-based planes. Some supplies were flown in from Italy. But the two Russian armies, one in the Carpathian passes in the north and the other south in Hungary, bogged down, and the First Czechoslovak Army, which had won Allied recognition and belligerent status under the able 54-year-old Gen. Rudolf Viest, were defeated after two months by seven German divisions. General Viest and his chief of staff, Brig. Gen. Karol Golián, were captured.

Principal Events, 1945.—While the anti-Nazi uprising suffered a temporary setback as the Germans had occupied two central Slovak bastions of the insurgents, Báňská Bystřica and Zvoleň, Užhorod, Ruthenia's capital, fell to the Soviet army on October 27, on the eve of Czechoslovak Independence Day; František Němec, the Czech government delegate, went from London to take charge of the province. By the end of December numerous towns had been liberated in Eastern Slovakia, and National Committees, similar to the one in Užhorod, were elected. UNRRA began sending medical supplies to the liberated areas. While Russia had formerly agreed to respect Czechoslovakia's pre-Munich frontiers, she

indicated in January a desire to join Ruthenia with the Soviet Ukraine. When the Czechoslovak government recognized the Lublin Committee installed in Warsaw as the provisional government of Poland, the London Polish government broke off diplomatic relations with the Beneš government on February 1. Beneš and his Cabinet arrived in Moscow on March 17, on the way to Košiče and eventually to Prague. On April 7, the new Czechoslovak government, headed by Premier Zdĕnek Fierlinger, former minister to Russia, with Jan Masaryk as minister of foreign affairs, was appointed and pledged to maintain "practical" military, political, economic and cultural relations with Russia; six Communists were included in the Cabinet. On May 5, the London government appealed by broadcast to the citizens of Prague to join the patriots and fight the enemy; Partisan broadcasts from Prague appealed for Allied aid. While all the rest of Europe was beginning to celebrate V-E Day, Prague suddenly turned itself into one big shooting gallery. As things turned out, Prague was liberated, not by the Allies, who did not arrive until the shooting was all over, but by 22,000 Russian outlaws wearing German uniforms under Gen. Vlasov; the German resistance ended four days later. On May 15, the prime minister announced that the people of Ruthenia had formed an autonomous government, which had expressed the desire to join the Soviet Union; a day later President Beneš arrived in Prague. On June 29, an agreement was signed in Moscow transferring Ruthenia to the U.S.S.R. When Prague was opened again to the Czechoslovak government, Dr. Beneš announced that all Nazi Germans must leave. But when Prague began the expulsion, with Moscow's approval, London stepped in and demanded a postponement. Then Prague started exchanging 300,000 Slovaks in Hungary for 500,000 Magyars in Czechoslovakia. Meanwhile, Prague had seized more than 270,000 farms, comprising about 6,250,000 acres, chiefly in the Sudetenland, owned by Germans, Hungarians or "traitors and collaborationists" generally. In July, the Russians started moving out of Czechoslovakia. Beneš was a more popular figure than ever. Under the decree of August 24, every able-bodied citizen had to take part in reconstruction; labor brigades were recruited to be sent to colonize "economic vacuums" in border regions and into the mines. The 22d U.S. Army Corps in Plzeň (better known to Americans as Pilsen), supplied army trucks with drivers to help in the harvesting of the crops and storing of the grain.

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DABNEY, Charles William, American educator: b. Hampden-Sydney, Va., June 19, 1855; d. Asheville, N.C., June 15, 1945. Dr. Dabney was president of the University of Cincinnati from 1904 to 1920, during which time it developed from a small institution to one of the best known American municipal universities. Dr. Dabney received his B.A. degree from Hampden-Sydney College in 1873, and studied at the University of Virginia from 1874 to 1877. He was professor of chemistry at Emory and Henry College for a year, and then spent two years studying in Berlin and Göttingen, receiving his Ph.D. degree from the University of Göttingen in 1880. He became professor of chemistry at the University of North Carolina (1880–81), and state chemist and director of the North Carolina Agricultural Experiment Station (1880–87). He served as director of the Tennessee Agricultural Experiment Station (1887–90), and as president of the University of Tennessee (1887–1904). During the years 1893–97 he was also assistant secretary of agriculture in the administration of President Cleveland. In 1921, the year after he retired from the University of Cincinnati, he organized a firm of geologists and engineers in Houston, Texas. Four years later he began preparation of the two-volume work, *Universal Education in the South,* published in 1936.

DAGO, dä'gû (**HIIUMAA,** hē'o͞omä) **ISLAND.** This island, situated to the southwest of the entrance of the Gulf of Finland and north of the island of Ösel, in the Baltic Sea, originally belonged to Denmark, but was acquired by Sweden in 1645, and was held by Russia from 1721 to 1919, when it became a possession of Estonia. It has a normal population of about 16,000, the inhabitants including many Swedes. Its fisheries are productive, but the soil is poor for agricultural pursuits. The Soviet-Estonian mutual-assistance pact, signed on Sept. 28, 1939, permitted the location of Soviet naval bases and aerodromes and 25,000 Soviet troops on the islands of Dagö and Ösel (q.v.) and at the mainland port of Paldiski (Baltiski). In October 1941, however, the island of Dagö was occupied by the Germans, after several days of severe fighting, and remained for nearly three years thereafter part of the system by which the Germans and the Finns maintained their blockade of the Gulf of Finland. By the end of September 1944, Finland's break with Germany and the reconquest by the Soviet armies of the Estonian mainland had cleared the way for the expulsion of the Germans from Dagö and Ösel. Dagö was captured by Red Army forces on Oct. 1-2, 1944. See also ESTONIA.

DAHOMEY. See FRENCH WEST AFRICA.

DAIRY INDUSTRY, Bureau of. See AGRICULTURAL RESEARCH ADMINISTRATION.

DAKAR. See FRENCH WEST AFRICA.

DALADIER, Edouard, French political leader: b. Carpentras, France, June 18, 1884. M. Daladier was premier of France at the outbreak of the Second World War on Sept. 3, 1939. With Britain's late prime minister, Neville Chamberlain, he presided at the "peace" of Munich. The collapse of France in the war with Germany led to his downfall on March 20, 1940. There followed a brief period as minister of defense and war in the Reynaud Cabinet until May 20, when he became foreign minister; he resigned this post on June 6. On November 17, 1940, he was

arrested by the Vichy government and imprisoned. At the Riom war-guilt trials (February 1942), Daladier, with Leon Blum, led the attack on Marshal Pétain; these hearings were dropped in April 1942, and Daladier was placed under house arrest at Vals les Bains, but a short time later, was removed to Bourrasol Castle, near Vichy. On April 5, 1943, it was announced from Berlin that he had been claimed by the German government and taken to a German prison to prevent "establishment of a counter-government" under Allied auspices. On May 5, 1945, he was freed from political imprisonment in Itter Castle, Austria, by American troops.

After his return to France in 1945, he testified at the Pétain trial. He was honorary president of the Radical Socialist Party at the party congress held in August.

DALTON, Hugh, British Cabinet member: b. Neath, Glamorganshire, South Wales, 1887. Mr. Dalton was appointed chancellor of the exchequer in the Attlee Cabinet in late July 1945. He had previously been president of the board of trade in Winston Churchill's coalition government. Fifty-nine-year-old Hugh Dalton was educated at Eton; King's College, Cambridge; and the London School of Economics. After the First World War (in which he served on the French and Italian fronts), he was Sir Ernest Cassel Reader in Commerce at the University of London, 1920–25; later in economics, 1925–36. He was parliamentary undersecretary in the Foreign Office, 1929–31, and from 1936–37, chairman of the National Executive of the Labour Party. He served as minister of economic warfare, 1940–42, becoming president of the board of trade in the latter year. He is author of *Inequality of Incomes in Modern Communities; With British Guns in Italy; Principles of Public Finance; The Peace of Nations; Practical Socialism for Britain;* and *Hitler's War.*

DAMS. President Truman presided and spoke Oct. 10, 1945, at the formal dedication of the finished Kentucky Dam on the Tennessee River at Gilbertsville, 22.4 miles above the junction of this river with the Ohio. This is the last and largest unit of the system of dams which will give a 9-foot navigation channel from the Ohio to Knoxville, Tenn. The dam is 8,650 feet long, 206 feet high and backs up a pool more than 180 miles long. One purpose of this dam of importance, in view of the destructive floods in the Lower Mississippi Valley in recent years, is that it can stop the flow of the Tennessee River for several days, and reduce the flood stage at Cairo as much as two feet. Together with other dams above this the flood stage may be reduced as much as 4 feet.

On this occasion the president announced that the time had now come to start on the greater flood control plans for the great tributaries of the Mississippi, namely the Missouri, the Arkansas, the White and other rivers to the west. In this connection the flood control of the Ohio has already been planned for, and the money for it is included in the billion dollar appropriation passed by Congress at the end of 1944. Dams for navigation purposes are already built in the Ohio, but there remains a number of reservoirs yet to be created in the upper tributaries to hold back floodwaters. See also TENNESSEE VALLEY AUTHORITY.

Missouri Valley Project.—The creation of a Missouri Valley Authority has been agitated and planned for several years. On Nov. 28, 1944, the late President Roosevelt asked Congress to authorize a basic engineering plan for the Missouri River Basin, to be developed and supervised by a Missouri Valley Authority, but no construction to begin until six months after the end of the war. The plan to be along the lines of the joint proposal of the Bureau of Reclamation and the Corps of United States Engineers which had previously met at Omaha, Neb., to prepare a report on the same. On December 23 a bill was passed by Congress and signed by Mr. Roosevelt appropriating $1,000,000,000 for flood control with the provision that $400,000,000 should apply to financing the Missouri Valley Authority project.

The Missouri Valley project will include irrigation as well as flood control, navigation and power development, as the middle course of the Missouri passes through hundreds of miles east of the Rockies which are deficient in rainfall. Reclamation through irrigation comes under the jurisdiction of the Bureau of Reclamation. The Corps of Engineers is chiefly concerned with navigation and flood control, but both must make allowances for the use of water for generating power for industries and rural electrification. At the Omaha conference an agreement was reached setting forth three main points on which they concurred as to jurisdiction and objectives.

(1) The Corps of Engineers should have the responsibility for determining main stem reservoir capacities and capacities of tributaries for flood control and navigation.

(2) The Bureau of Reclamation should have the responsibility for determining the reservoir capacities on the main stem and tributaries of the Missouri for irrigation and probable future extension of irrigation, and the amount of stream depletion due to irrigation.

(3) Both agencies recognize the importance of the fullest development of hydroelectric power consistent with other beneficial uses of the water.

They also adopted a series of six subdivisions set forth originally in the plan of the Bureau of Reclamation as submitted to the Senate in recording the changes made in the various areas. These comprise: (1) Upper Missouri River Basin, (2) Yellowstone River Basin, (3) Missouri River—Fort Peck to Sioux City, (4) minor western tributaries, (5) Niobrara, Platte and Kansas rivers, (6) lower Missouri Basin.

Lackawack Dam, Delaware River.—The New York Water Supply Board received bids in September 1945, for the completion of the Lackawack Dam on the headwaters of the Delaware River. These bids were rejected as being too high, and new bids were re-advertised for. This dam is to form the chief reservoir for the new water supply system of New York City. Work on most of this system including other dams and the great aqueduct has been completed and in use to a limited extent. The original contract for this dam when work was started in 1939 was at the figure of $15,486,000. The work was stopped during the war due to shortage of material and labor when about half done, and it was estimated that $8,000,000 would finish it at the original contract scale of prices. However the lowest bid in September 1945 was $13,919,950.

James River Project.—The Virginia State Planning Board in August 1945, sent out a prospectus of the proposed development of the James River Basin. This was worked out in collaboration with the United States Engineering Corps. They asked for approval and opinions of governing bodies, civic and other public organiza-

tions, etc. This is to be a long range project covering several decades. The announced purpose is for flood control of the James River, navigation and the sale of electric power from hydroelectric developments. There will be 14 dams, one of which is finished. Four of the dams are for flood control. The total capacities of reservoirs will be 4,400,000 acre-feet, of which about 20 per cent will be reserve capacity for flood control. The highest dams are located in the valleys of the headwater tributaries, and range in height from 135 to 248 feet. The dams in the lower reaches of the river range from 60 to 84 feet. It is pointed out that full sale of power will depend upon the early finishing of the upper dams to furnish reservoir capacity for an even all year flow of water. It is estimated that 159,000 acres will eventually be bought, of which 52,000 acres are cleared. Much of the acreage is in the uplands and of less agricultural importance.

Anderson Ranch Dam.—In Idaho work was resumed in the fall of 1945 on the Anderson Ranch Dam on the South Fork of Boise River; estimated to be finished in 1947 or early 1948. The spillway height will be 339 feet, and the ultimate reservoir capacity will be 500,000 acre-feet.

Uruguayan Project.—In Uruguay a most important project to that country is being pushed to completion. This is the Rincon de Bonete Dam on the Rio Negro for flood control, hydroelectric development and navigation control. The dam is near the center of the country, about 145 miles from Montevideo which will be the chief user of current generated. There will be a 7-foot channel for navigation to the Uruguay River 245 miles distant. The dam will be all concrete except 305 feet of earth fill with concrete core at the east end. Maximum height of dam is 137.4 feet, length 3,846 feet, with a reservoir 93 miles long. Ultimate capacity will be 128,000 kva (kilovolt-ampere). When completed the project will about double the electric supply of the country. Uruguay has no coal and timber for fuel, and has depended upon the United States for fuel oil and coal. During the height of the German submarine campaign wheat and corn were used for fuel in Montevideo powerhouses, and for fuel otherwise. The project is a government monopoly for generating and distributing current. The project was started in 1937 by a German syndicate and Buenos Aires contractors, and was about 90 per cent complete when the war began, but lacked generators and equipment. In 1942 United States engineers took over and manufacturers here were allowed to furnish one generating unit and line equipment to Montevideo. The completion of 4 units will care for 70 per cent of the fuel consumption of Montevideo.

Brazilian Project.—In Brazil it is planned to develop the San Francisco River along the lines of TVA. The first hydroelectric plant is planned to be at Paulo Alfonso Falls, 265 feet high, and 145 miles from the river's mouth. $20,000,000 capital is required, one half furnished by the national government. It is expected to begin generating current in five years with an initial capacity of 110,000 kw (kilowatt). The ultimate capacity will be 440,000 kw. See also RECLAMATION.

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Consulting Engineer, New York.

DANCE, The. Despite innumerable wartime difficulties, there was an enormous amount of activity in all fields of the dance during the 1944–45 season. Large cross sections of the public new to the dance were being won over to this form of entertainment by the touring ballet companies which enjoyed unprecedented popularity. The so-called modern dance displayed renewed vigor, with an unusually large number of recitals and a constantly growing audience. All types of dancers performed for the entertainment of men in the armed services, at the fighting fronts, in camps, canteens, and hospitals, and several groups were organized within the services by dancers in uniform. The Foxhole Ballet, first ballet unit sponsored by the USO, made a six months' tour of Italy, France, Belgium, and Germany, and was enthusiastically received by American troops wherever it appeared.

Leading dancers were in great demand both in the professional theater and motion pictures. Almost every new Broadway musical boasted a dance attraction and many incorporated full-fledged ballets by noted choreographers from the ballet and modern dance fields. For a time during 1944, the Ballet Russe de Monte Carlo itself was featured in the dances George Balanchine staged for *Song of Norway.* Alicia Markova and Anton Dolin danced to an original score, *Scènes de Ballet,* by Igor Stravinsky, in *The Seven Lively Arts.* Jerome Robbins choreographed a complete ballet, *Interplay,* for inclusion in *Concert Varieties.* Other Broadway shows employing serious choreographers were *Bloomer Girl* and *Carousel* (de Mille); *La Vie Parisienne* (Massine); *Hollywood Pinafore* (Tudor); *Rhapsody* (Lichine); *On the Town* (Robbins); *The Firebrand of Florence* (Littlefield); *Sadie Thompson* (Caton); *Sing Out, Sweet Land* (Humphrey-Weidman); *Up in Central Park* (Tamiris); *Dark of the Moon* (Junger); and *Blue Holiday* (Dunham). Helen Tamiris and Daniel Negrin toured as featured dancers in *People's Bandwagon,* a revue designed to entertain rallies to re-elect President Roosevelt. Among recent motion pictures in which prominent dancers appeared are *A Song for Miss Julie* (Markova and Dolin); *Tonight and Every Night* (Marc Platt); *Make Mine Music* (Lichine and Riabouchinska); and *Night and Day* (Mladova and Zoritch). Agnes de Mille went to England to direct dances for the film *London Town.*

Starting in September, New York enjoyed an almost uninterrupted ballet season of four months, with the Ballet Russe de Monte Carlo, the Ballet Theater, and the Ballet International, a new company, succeeding each other. The Ballet International, founded in May 1944, made its first appearance in an eight-week season under the sponsorship of the Ballet Institute, a nonprofit educational organization. The initial cost of setting up this company, estimated at $250,000, was underwritten solely by George de Cuevas, founder and artistic director, and his wife, the former Margaret Strong, granddaughter of the late John D. Rockefeller. With the intention of giving New York a resident ballet, the Park Theater was leased for 10 years, redecorated, and renamed the International. The company consisted of some 50 dancers, headed by Viola Essen, Marie-Jeanne, André Eglevsky, and William Dollar. Seven world premieres were offered: Bronislava Nijinska's *Brahms Variations,* decor by Marcel Vertès; Nijinska's setting of Mussorgsky's *Pictures at an Exhibition,* decor by Boris Aronson; Léonide Massine's *Mad Tristan,* music by Wagner, scenario, sets, and costumes by Salvador Dali; Simon Semenoff's *Memories,* based on a story by Winthrop Palmer, staged to Brahms

waltzes, decor by Raoul Pené du Bois; Edward Caton's *Sebastian,* music by Gian-Carlo Menotti, sets by Oliver Smith, costumes by Milena; Antonia Cobos' *The Mute Wife,* after Anatole France's *The Man Who Married a Dumb Wife,* music by Paganini arranged by Vittorio Rieti, decor by Rico Lebrun; and Eglevsky's *Sentimental Colloquy,* inspired by Verlaine's poem, music by Paul Bowles, decor by Dali. In addition to *Les Sylphides* and *Swan Lake,* there were three other revivals: Nijinska's setting of Ravel's *Bolero* (first created for Ida Rubinstein in 1928), sets by Enrico Donati; Dollar's *Constantia* (first performed by the American Ballet in 1936, when it was called *Concerto*) to Chopin's F Minor Piano Concerto, sets by Horace Armistead, costumes by Grace Houston; and Boris Romanoff's *Prince Goudal's Festival* (first staged some 20 years ago for Romanoff's Romantic Theater in Berlin), music from Anton Rubinstein's *The Demon,* decor by Mstislav Dobujinsky. None of these ballets proved to be a complete artistic or commercial success, although *Constantia* and *Pictures at an Exhibition* showed considerable accomplishment, and *Sebastian* and *The Mute Wife* had moments of effectiveness. What the Ballet International chiefly needed was a clearly defined artistic policy and strong experienced leadership. The company also suffered from a weak second-line of soloists (despite the excellent dancing of Francisco Moncion and John Guelis), an inadequately trained corps de ballet, and a repertory lacking in distinction and balance. On the credit side were excellent new scores by Bowles and Menotti, and a capable orchestra. David Lichine, Tatiana Riabouchinska, Irina Baronova, and George Zoritch later joined the company, but the troupe was finally disbanded in March 1945.

The Ballet Russe de Monte Carlo staged a triumphant come back during the 1944–45 season. This success was largely due to the efforts of George Balanchine, who, though he held no official title, drilled the company, gave it four of his best ballets to dance, and generally raised the artistic standing of the organization to a high level. One of the finest new ballets of the season was his setting of Stravinsky's *Danses Concertantes,* a brilliantly animated divertissement, with sumptuous sets and costumes by Eugène Berman. In addition, he created a new *Pas de Deux* to entr'acte music from Tchaikovsky's *Sleeping Beauty;* presented revised versions of *Le Bourgeois Gentilhomme* (first produced by the René Blum and Colonel de Basil Ballets Russes de Monte Carlo in 1932), after Molière's comedy, music by Richard Strauss, decor by Berman, and Tchaikovsky's *Mozartiana* (created for Les Ballets 1933), sets by Berman, costumes by Christian Bérard; and revived *Ballet Imperial* (first presented by the American Ballet on its South American tour in 1941), to Tchaikovsky's G Major Piano Concerto, decor by Dobujinsky. During the spring season, two Balanchine festival evenings were given in celebration of his 25th anniversary as a choreographer. Another revival by this company was Ruth Page's and Bentley Stone's *Frankie and Johnny* (first done for the WPA Federal Theater in Chicago in 1938), music by Jerome Moross, sets by Clive Rickabaugh, costumes by Paul Dupont.

Of the five new offerings by the Ballet Theater, the most outstanding was Antony Tudor's "psychological murder ballet," *Undertow,* to a highly dramatic score by William Schuman, with decor by Raymond Breinin. Other premieres by this company included Balanchine's *Waltz Academy,* music by Rieti, sets by Oliver Smith, costumes by Alvin Colt; Massine's setting of Beethoven's *Moonlight Sonata,* decor by Sergei Soudeikine; Nijinska's *Harvest Time,* music by Wieniawski, costumes by Enid Gilbert; and Nijinska's *Rendezvous,* a character pas de deux to Rachmaninoff's *Polka by V.R.* Among the revivals were a restaging of Lichine's popular *Graduation Ball* (first given by Colonel de Basil's Ballet Russe in Australia in 1939), and Anatole Oboukhoff's versions of the grand pas de deux from Petipa's *Don Quixote,* and from the third act of *Swan Lake* (called *The Black Swan*). Guest stars appearing with the Ballet Theater were Tamara Toumanova, Lichine, Riabouchinska, Markova, Dolin, Massine, Eglevsky, Robbins, and Argentinita. In April, Lucia Chase and Oliver Smith were made administrative directors of this company.

During the summer, Markova and Dolin, assisted by a company of four, and Massine's *Ballet Russe Highlights,* featuring Baronova, Eglevsky, and Yurek Lazowski, were seen in programs of excerpts from ballets and short new numbers at New York's Lewisohn Stadium. Both of these groups are scheduled to tour in 1945–46. Earlier in the season, Mia Slavenska and Marina Svetlova and their ensembles both gave programs of divertissements.

Unquestionably the most important event in the modern dance field was the presentation of three new compositions by Martha Graham, commissioned by the Elizabeth Sprague Coolidge Foundation, to scores, also commissioned, by Darius Milhaud, Aaron Copland, and Paul Hindemith, at the 10th chamber music festival held in the Library of Congress late in October. Of the three works, Milhaud's *Imagined Wings,* utilizing the spoken word, was the least successful, but *Appalachian Spring,* a radiant evocation of early American life, with a score by Copland which won the 1945 Pulitzer Prize in music, and Hindemith's *Hérodiade* (formerly called *Mirror Before Me*), a somber, anguished study of a woman preparing to meet an unknown destiny, must be counted among Miss Graham's very finest achievements. The latter two works were given during the company's brief season in New York, together with Erick Hawkin's *John Brown,* music by Charles Mills, and Merce Cunningham's *Mysterious Adventure,* music by John Cage. This season was such a popular success that Miss Graham and her company have been signed to appear in 1945–46 both in New York and on tour under the management of S. Hurok.

Late in June, Charles Weidman and his new company offered four new works at a series of preview performances in New York: *David and Goliath,* music by Johann Kuhnau, *Dialogue,* to Ernest Bloch's *Concerto Grosso,* and *A House Divided,* music by Lionel Nowak, all three choreographed by Mr. Weidman; and Peter Hamilton's *Three Antique Dances,* to Purcell's music.

During the summer, Hanya Holm presented three group compositions at Colorado College's Fine Arts Conference and Composer's Congress at the Art Center in Colorado Springs: two new works, *Walt Whitman Suite,* to music by Roy Harris, and *The Garden of Eden,* using Milhaud's score for *La Création du Monde;* and *What Dreams May Come,* to music by Alex North, first produced in the summer of 1944.

Many younger artists in the modern dance field gave notable New York recitals during the season. The Dudley-Maslow-Bales Trio, with Frieda Flier replacing Sophie Maslow, offered

three new works: Jane Dudley's solo, *New World A-Comin'*, Dudley-Bales' *Furlough*, and Miss Flier's *Slow Goodbye Blues*. The new trio composed of José Limón, Beatrice Seckler, and Dorothy Bird, under the artistic direction of Doris Humphrey, made an auspicious debut, which included two new compositions by Mr. Limón: *Concerto*, music by Vivaldi, and *Eden Tree*, music by Carl Engel and Mr. Limón, as well as *Three Ballads*, danced by the trio to a suite of folk songs. Pearl Primus and Valerie Bettis and their groups made official Broadway debuts which proved them among the most talented of the younger dancers. Other important recitals were given by Merce Cunningham; Sybil Shearer; and Nina Fonaroff and May O'Donnell, and their groups, in a joint program. The New Dance Group held a successful three-day festival in June, with a roster including the Dudley-Maslow-Bales Trio, Eva Desca, Jane Erdman, Hadassah, Lili Mann, and Pearl Primus.

La Meri and her Natya dancers presented first performances of Rimsky-Korsakov's *Scheherazade* in the Hindu idiom; *Chitra*, a dance play by Tagore; Ravel's *Alborada del Gracioso;* and Debussy's *Ibéria*. Tei Ko made her first New York appearances, and Ragini Devi and her group gave an India dance festival in commemoration of Tagore's birthday. Argentinita, Pilar Lopez, and company, offered a recital at Carnegie Hall. Katherine Dunham's *Tropical Revue* enjoyed a successful three-week Broadway season. The second annual festival of African Dance and Music included Asadata Dafora's new *Festival at Battalkor*. Ted Shawn gave a fall recital, and then in April joined with Ruth St. Denis to present Jacob's Pillow Dance Festival's Night of Stars, involving the services of 16 dancers who have appeared at the annual festivals at the organization's headquarters near Lee, Mass.

In England, the Sadler's Wells Ballet, which has mounted 12 new productions since 1940, was widely acclaimed during its ten-weeks' tour of France and Belgium, early in 1945, under the auspices of ENSA (Entertainments National Service Association). Prior to this tour, the company staged Robert Helpmann's powerful new ballet, *Miracle in the Gorbals*, to a story by Michael Benthall, with an original score by Arthur Bliss, and decor by Edward Burra. On July 24, 1945, the company returned to its home theater, the Sadler's Wells in London, for the first time since 1940. The Ballet Rambert presented two new works: Andrée Howard's *The Fugitive*, story, sets, and costumes by Hugh Stevenson, music by Leonard Salzedo; and Walter Gore's choreographic translation of Benjamin Britten's *Simple Symphony*, decor by Ronald Wilson. The International Ballet, founded in 1941, has a repertory chiefly made up of the classics, but Angelo Andes' arrangement of *Danses Espagnoles* to music by Spanish composers, with decor by Hein Heckroth, was a new offering. The Ballet Jooss gave one new work: Hans Zullig's *Le Bosquet*, music by Rameau, decor by Doris Zinkeisen. On Jan. 16, 1945, the London Archives of the Dance was established under the chairmanship of Cyril W. Beaumont.

In Paris, during the German occupation, Serge Lifar choreographed 12 new ballets at the Opéra, but after the liberation, he was accused of collaborating with the Nazis and ousted from his post as premier danseur étoile and maître de ballet. The first production of the new Opéra management was Serge Peretti's *L'Appel de la Route*, to an original score by Arthur Honegger, with decor by Roger Wild. Reminiscent of the Diaghilev era was the sensational spring appearance of Les Ballets des Champs Elysées, a new company formed by Roland Petit and Boris Kochno. This small group of about a dozen artists presented two new ballets choreographed by Petit: *Les Forains*, story by Kochno, music by Henri Sauguet, decor by Bérard; and *Le Rendezvous*, story by Jacques Pérvert, music by Pierre Kosma, curtain by Picasso, decor by Brassi.

In Rome, the gifted young Hungarian choreographer, Aurel Milloss, maître de ballet of the Teatro Reale since 1939, staged some 14 of his recent ballets during a three-week season sponsored by the British Army Educational Services. According to report, the most notable were his own versions of Stravinsky's *Petroushka*, Prokofiev's *L'Enfant Prodigue*, Ravel's *Bolero*, and *Caprice*, to Stravinsky's two suites for small orchestra.

Moscow's Bolshoi Theater, traditional home of the classical ballet, celebrated the 50th anniversary of Tchaikovsky's death by presenting *Love of a Snow Maiden*, to a score selected and arranged from his music by Boris Asafiev, and mounted new productions of *Casse-Noisette* and *Swan Lake*. The Stanislavski and Nemirovich-Dantchenko Theater, also in Moscow, specializes in more modern ballets, and recently has given Oransky's *The Merry Wives of Windsor; Straussiana; Lola*, to music by Vassilenko and several Spanish composers; Asafiev's *Francesca de Rimini*, and a revival of *Scheherazade*. The Leningrad Kirov (formerly Marinsky) Theater of Opera and Ballet, which returned to its home city from Molotov in 1944 after an absence of three years, has presented Aram Khatchaturian's *Gayane* and a Bashkirian ballet, *Song of the Crane*.

The Royal Danish Ballet, with Herald Lander as maître de ballet, managed to survive the German occupation. Colonel de Basil's Original Ballet Russe continued to play to large audiences in Central and South America, and Igor Schwetzoff was appointed maître de ballet of the Teatro Municipal in Rio de Janeiro. In Australia, Hélène Kirsova and Edouard Borovansky have both organized ballet troupes, with headquarters in Sydney and Melbourne respectively.

The dance world was saddened by the loss of the great Spanish dancer, Argentinita (q.v.), who died on Sept. 24, 1945. Confirmation has been received of the deaths of Vera Trefilova, former prima ballerina of the St. Petersburg Imperial Theater, in Paris on July 11, 1943, and of René Blum, co-founder of the Ballet Russe de Monte Carlo, in a German concentration camp in April 1944. However, reports that Vaslav Nijinsky had been executed by the Nazis were false: he was found by Russian forces at Sopron, near the Hungarian border, and is now safely living in Vienna.

EDWARD M. STRINGHAM,
Americana Staff.

DANZIG. Baltic seaport and commercial center near the mouth of the Vistula River. Set up, with surrounding territories, in 1920 under the Treaty of Versailles as the Free City of Danzig (with League of Nations protection), it extended between East Prussia on the East, to Pomorze, the Polish corridor province also created by the Versailles Treaty, on the west. The territory of Danzig under the treaty was about 754 square miles in extent, and by the time of the German occupation had a total population of about 415,000, with some 266,000 in Danzig proper.

Dominated by the Nazi Party from 1933 on, Danzig was taken over on Sept. 1, 1939, by Hitler as a part of the German Reich. By a decree of Nov. 1, 1939, it was made the capital of Hitler's new German province of West Prussia.

Important since the middle ages as a port and trading center, in the latter part of the 19th century Danzig underwent further industrialization. The area's industries include shipyards, sawmills, breweries, distilleries, a fertilizer plant, a bolt-and-nut factory, and plants for the manufacture of bricks, furniture, cocoa and cigarettes.

In 1943 Danzig became a target for allied air attacks, American airmen covering a round trip of 1,600 miles from Britain to carry out their missions. During the spring and summer of 1944, Danzig was in the midst of the area of intensive bombing raids and by the end of September was in the path of further bombing attacks from east and west, and of potential Soviet drives through East Prussia and down the Baltic. On March 30, 1945, Russian troops captured Danzig over which they hoisted the Polish flag indicating recognition of Poland's claim. The following day the provisional government at Warsaw announced the province as "an inseparable part of the Polish Republic."

DAVIS, Fay, Anglo-American actress: b. Boston, Mass., 1872; d. Exmouth, Devonshire, England, Feb. 26, 1945. Although born and educated in the United States, Miss Davis (Mrs. Gerald Lawrence) won her greatest triumphs in England, where she went in 1895 to join the company of Sir Charles Wyndham. Her first appearance in *A Squire of Dames* brought her immediate success, and in 1896 she went to the St. James Theater, where she stayed for five years and played her first Shakespearean roles. In 1902, she returned to the United States to appear in *Imprudence,* under the auspices of Charles Frohman. She returned to London several years later and remained there to act in many successful productions. After her appearances in *The Shadow Princess* and *On the Rocks,* she retired from the stage in 1933.

DAWSON OF PENN, LORD, the former BERTRAND DAWSON, English physician: b. 1866?; d. London, England, March 7, 1945. Physician-in-ordinary to King George VI and Queen Mary, Lord Dawson probably attended more royal personages than any other doctor. He became physician-in-ordinary to King Edward VII in 1907, and continued in the same duties to his close friend, King George V, and to King Edward VIII. He also attended many members of the English royal family.

Lord Dawson was educated at University College and London Hospital, and began his career as a general practitioner in Harley Street, London. He was knighted in the coronation honors of 1911, and served through the First World War as major general in charge of the Army Medical Service. In 1920, he was raised to the peerage as a baron, and in 1936, he was made a viscount. Lord Dawson came to the United States in 1930 and visited the Mayo Clinic, Rochester, Minn., Johns Hopkins, Baltimore, Md., and hospitals in Washington, D.C., and New York City. From 1931 to 1938 he served as president of the Royal College of Physicians.

DDT. See AGRICULTURAL RESEARCH ADMINISTRATION—*Bureau of Entomology and Plant Quarantine;* CHEMISTRY—*Drugs, Insecticides and Agricultural Chemicals;* MEDICINE.

DEAFNESS. See SURGERY, PROGRESS IN.

DEBT, U. S. Public. See TREASURY OF THE UNITED STATES.

DELAND, MRS. Margaretta Wade, American author: b. Alleghany, Pa., Feb. 23, 1857; d. Boston, Mass., Jan. 13, 1945. A prolific writer of novels and short stories, Mrs. Deland's first work of fiction, *John Ward, Preacher,* published in 1888, highly shocked her contemporaries because of its unorthodox treatment of religious and social questions. Her other works include *The Old Garden and Other Verses* (1886); *The Story of a Child* (1892); *Old Chester Tales,* popular studies of village life and character (1899); *Dr. Lavendar's People* (1904); *The Awakening of Helena Richie* (1906); *The Iron Woman* (1911); *The Rising Tide* (1916); *The Vehement Flame* (1922); and *Golden Yesterdays,* an autobiography (1941). When Mrs. Deland was elected to the National Institute of Arts and Letters on Nov. 10, 1926, she was one of the first women to be chosen for membership in the institute.

DELATTRE DE TASSIGNY, Jean (Joseph Marie Gabriel), French Army officer: b. Mouilleron-en-Paretz, Vendée, France, Feb. 2, 1889. General Delattre de Tassigny commanded the French divisions which participated in the invasion of southern France (mid-August 1944) as part of General Patch's Seventh Army. At the end of September 1944, his forces, reinforced by other French divisions, and later by one American division, were constituted as the French First Army. The First, with the American Seventh, formed the Sixth Army Group under Gen. Jacob L. Devers. It was to troops of the Sixth Army Group that the famous German Army Group G in Austria surrendered on May 6, 1945. A St. Cyr graduate, Delattre de Tassigny fought in the First World War, and in 1925, took part in the Riff campaign. In the Second World War, he commanded the 14th Infantry Division which distinguished itself in defensive action at Rethel and on the Aisne, May 15–June 11, 1940. In September 1941, he was sent by Vichy to command troops in Tunisia, but his pro-Allied sentiments brought about his recall to France in January 1942, and he was given the 16th Division command at Montpellier. With the North African invasion in November 1942, he tried to organize French resistance to Germany; was arrested and tried by Vichy; and sentenced to 10 years' imprisonment. In September 1943, he escaped Riom prison; reached London by way of the French underground; and in December, joined General de Gaulle in Algiers, where he assisted in the reorganization of French troops in North Africa. Until July 1945, Delattre de Tassigny was the French representative on the Inter-Allied Control Commission in Berlin; in that month, he was appointed inspector-general of the French Army.

DELAWARE. South Atlantic state, United States; one of the original thirteen states. Population (1940): rural, 127,073; urban, 139,432; total, 266,505. Land area, 1,978 square miles, divided into 3 counties. Chief cities, with 1940 populations: Wilmington, 112,504; Dover, the capital, 5,517; Newark, 4,502; New Castle, 4,414.

Chief State Officers, 1945.—Governor, Walter W. Bacon; lieutenant governor, Elbert N. Carvel; secretary of state, William J. Storey; treasurer, Jesse S. Cooper; auditor of accounts, Wilbur E. Jacobs; attorney general, Clair J. Killoran.

Judiciary.—Chancellor of Delaware's Supreme Court, William Watson Harrington; vice chancellor, George Burton Pearson, Jr.; chief justice, Charles S. Richards; associate justices, Frank L. Speakman, for New Castle County; Charles L. Terry, Jr., for Kent County; and James B. Carey, for Sussex County.

Legislature.—Delaware's General Assembly (Senate, 17 members; House of Representatives, 35) meets biennially in odd-numbered years, on the first Tuesday in January.

Education.—Public elementary schools (1944–45), 160; teachers, 830; pupils, 25,853; average yearly salary of elementary school teachers, $1,765. Public junior and senior high schools (1944–45), 46; teachers, 744; students, 16,233; average yearly salary of junior and senior high school teachers, $2,060. Teacher training courses are offered at the University of Delaware, Newark, and the State College for Colored Students, Dover; both these institutions receive financial aid from the state. Total state appropriation for education in 1944–45, $4,350,000. Education is compulsory for children between the ages of 8 and 14, inclusive. State superintendent of public instruction, H. V. Holloway.

Finances.—The following statement of Delaware's finances for the fiscal year 1943–44 is the latest available.

Balance in Treasury, beginning of fiscal year 1943–44	$ 5,798,098.66
Receipts, 1943–44	13,532,261.20
Total	$19,330,359.86
Disbursements, 1943–44	10,896,837.81
Balance, beginning of fiscal year 1944–45	$ 8,433,522.05

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	3,956	3,645	4,061
Oats (1,000 bu.)	78	116	128
Wheat (1,000 bu.)	1,348	1,280	1,407
Barley (1,000 bu.)	108	270	352
Rye (1,000 bu.)	117	225	210
Hay:			
Clover and timothy (1,000 tons)	45	38	43
Tame (1,000 tons)	87	96	119
Sweet potatoes (1,000 bu.)	493	465	450
Potatoes (1,000 bu.)	424	273	441
Apples (1,000 bu.)	1,034	870	352
Peaches (1,000 bu.)	365	605	230
Grapes (tons)	1,430	1,200	450

DENMARK. A country of Europe comprising the peninsula of Jutland, the islands of Zealand and Funen, about 500 smaller adjacent islands (of which 100 are inhabited), the Faroe Islands, and Greenland. Denmark proper was invaded by German troops on April 9, 1940, the entire country being quickly occupied. It has an area of 16,575 square miles, exclusive of Greenland and the Faroe Islands (qq.v.) with a population (1945 estimate) of 4,000,000.

Under the constitution of 1915, as amended in 1920, executive power was vested in the king (Christian X) who acted through a Cabinet responsible to the Rigsdag, which exercised legislative power jointly with the king. The Rigsdag was composed of two chambers—the Landsting, or Senate, of 76 members; and the Folketing, or Commons, of 149 members. However, after Aug. 29, 1943 these organs were prevented from functioning by the German occupants. For administrative purposes, the country was divided into 21 counties, each with a governor and a Council to supervise the rural municipalities. Copenhagen, the capital has, with suburbs, a population of over 1,000,000 (1944 estimate). Other large cities, with 1940 populations, are Aarhus (99,881), Odense (87,521), Aalborg (55,658), Esbjerg (33,155), Randers (32,928), and Horsens (30,417).

Education and Religion.—Denmark has had compulsory education since 1814. The school age is from 7 to 14. There are many secondary, professional, and vocational schools, as well as two universities, one at Copenhagen and the other at Aarhus. The Evangelical Lutheran is the established religion.

Production and Industry.—Denmark is a land of small farms, the development of which is encouraged by the law, which forbids their union into large farms. Before the Second World War Denmark was one large produce farm for England, motorized refrigeration boats carrying bacon, butter, eggs, and hams to Harwich in 18 hours. Peacetime Denmark had about half the world's trade in bacon, about 30 per cent in butter and eggs. Agricultural production was, of course, reduced during the occupation (April 9, 1940 to May 9, 1945) as a result of the inaccessibility of normal overseas sources of fuel, fertilizers, and fodder. Nevertheless, the number of head of cattle in August 1945 was about the same as before the war, although stocks of hogs had been somewhat reduced, and those of poultry considerably so.

Although Denmark has no minerals or water power it is one of the world's leading shipbuilding nations. It developed the ocean-going Diesel motorship. Clay and chalk on the east coast of Jutland provide materials for a large cement industry. Cement-making machinery for 700 plants throughout the world was manufactured in Denmark.

During the German occupation Denmark's greatest economic problem was that of trying to substitute for an industrial and commercial system based on world markets, a system limited to contacts on the European continent. Increased demand for machinery is said to have brought about a rapid development in the country's metal-processing industry, particularly in the manufacture of machines for preserving fruits, and processing wood, leather, and scrap metal. Whatever the extent to which German demands were responsible for this development, the total ouput of Danish products usable by the Germans is reported to have been substantially reduced by organized sabotage.

Denmark's fisheries are normally of the greatest importance, the value of the catch averaging about $10,000,000 annually. The fishing fleet consisted of some 15,350 boats.

Despite Denmark's heavy losses due to the occupation, it was estimated that the Danes, during the summer of 1945, would be able to produce surpluses of some 17,000 tons of beef, 40,000 tons of bacon, 40,000 tons of butter, 4,000 tons of condensed milk, and 1,500 tons of cheese, in addition to sugar, vegetables, and fish, for export to neighboring countries badly in need of food. This favorable situation was understood to depend, however, on Allied plans for making available to Denmark the fertilizer, coal, oil, and transportation equipment and supplies required to produce and handle these surpluses.

Foreign Trade as Affected by the German Occupation.—The value of Danish imports for 1944 was estimated at 1,167,600,000 crowns, a decrease of 58,500,000 crowns from the preceding year.

Exports in 1944 amounted to 1,347,600,000 crowns—an increase of 49,500,000 crowns over their value for 1943. The heavy export surplus for 1944 (180,000,000 crowns) contrasts sharply with the import surplus of 90,000,000 crowns for 1938. Significant for Denmark's trade balance and entire economy was the huge sum of approximately 2,692,000,000 crowns owed by Germany to Denmark on Sept. 30, 1944, for Danish goods and services used by the Germans on their so-called "clearing account," still unpaid by them at the time of the German collapse. No less significant for Denmark was the sum of 3,801,000,000 or more Danish crowns (equivalent to $773,500,000 in United States currency at rates prevailing in 1939) requisitioned by the German army of occupation from the National Bank of Denmark, also unpaid by Germany.

Since 1942, the German share of Danish exports (in which Germany had insisted on having priority) had been about 70 per cent. The remaining exports had been divided among Sweden, Finland, Norway, Italy, and other countries. In June 1945, following the liberation, Denmark arranged to send Finland machinery, foodstuffs, and metal goods to the value of 31,000,000 Danish crowns in return for Finnish products—largely building material—valued at 18,000,000 crowns, to restore an unfavorable trade balance. On August 3, credit to the extent of $20,000,000 (provided for through a loan from the Export-Import Bank, Washington, D.C.) was granted by Parliament for purchase in the United States of various kinds of goods by representatives of the Danish industries.

Transportation.—More goods were carried in coastwise shipping in 1943 than in 1942; 6,884,000 metric tons against 6,673,000. However, only 6,018,000 tons of goods in foreign trade were loaded and discharged in 1943 as compared with 12,651,000 tons in 1938.

A net profit of 60,320,000 kroner during the first 9 months of 1943 was noted by the state railroads as compared with 48,890,000 kroner in the corresponding months of 1942. The transportation situation was nevertheless acute, owing to the lack of locomotives and increasing sabotage. Gas transportation was drastically curtailed in January 1944. In September of the same year only police, fire, and other emergency vehicles (some 2,603 in all) were using gasoline, while wood-fuel generators were being used for 19,331 trucks, 867 motor coaches, 2,297 taxicabs, and 1,150 additional passenger cars. Because of tire shortage, bicycle transportation, always important in Denmark, and vital under the emergency, decreased by 10 per cent in the Copenhagen area in 1943.

In June 1945 it was reported that two important Danish shipping firms had both made substantial increases in their capital, with a view to the replacement of shipping lost during the war.

Defense.—At the beginning of the occupation (April 9, 1940), the Germans promised not to interfere with Denmark's small defense forces. However, on Aug. 29, 1943, German troops attacked Danish units without warning. The army was disarmed and disbanded, the fleet scuttled by its own crews. Many Danes saw service, however, with United Nations forces. On March 31, 1944, a Danish minesweeper division was inaugurated by the Royal Navy, manned by Danes and flying the British and Danish flags side by side. The Danish underground organized a Danish Army of the interior, ready to attack the Germans on invasion day. Early in March 1945, the underground forces were cited in a special communiqué from Allied supreme headquarters, praising their action in paralyzing German troop movements.

Principal Events of 1945.—The year opened gloomily for the Danes. There was every indication that their little country, along with Norway, had been earmarked for a last-ditch stand by the desperate Nazis. Work on fortifications on the west coast of Jutland and on the islands was speeded up. An endless stream of German troops, evacuated from Finland and Northern Norway, passed through Danish ports and airfields. The remnants of the German Baltic Fleet sought refuge in Copenhagen and other Danish harbors.

But German morale already was nearing the vanishing point. On February 5 it was learned in Stockholm that the commander of the German forces in Denmark, Gen. Hermann von Hanneken, had been replaced by Col. Gen. Georg Lindemann, owing to the former's failure to deal harshly with mutinies. For all his ruthlessness, however, Lindemann could not stem the rising tide of mutiny either. On February 24 a pitched battle between German regulars and Elite Guard troops took place in Copenhagen, with heavy casualties; later, 200 of the mutineers were executed by order of General Lindemann. Fresh outbreaks of mutiny, nevertheless, occurred in March.

In the face of Germany's steadily deteriorating military situation, Danish saboteurs greatly intensified their activities. Rail sabotage, impeding the redeployment of German troops from Norway, and the destruction of factories manufacturing parts for V-weapons became increasingly frequent. The effectiveness of this Danish contribution to the Allied war effort was hailed in a special communiqué from General Eisenhower's headquarters on March 5. In reprisal, the Germans multiplied arrests and executions of Danish patriots. The terror reached its peak of intensity in the last week of February during which some sixty people were murdered or executed by the Nazis. On March 21 British Mosquito planes bombed and completely wrecked Gestapo headquarters in Copenhagen, killing more than 300 Germans and making possible the escape of a number of prominent Danish patriots held in the building.

Throughout April the Germans made a show of their determination to hold Denmark and fight to the last man, but on May 1 the first signs of disintegration began to appear. Troops were withdrawn from less important towns, documents were burned outside Gestapo offices, the blackout was openly ignored in Copenhagen; patriotic crowds surging through the streets were not molested.

On May 2, however, a certain stiffening of the German attitude was noted, following the announcement of Hitler's death and the assumption of power by Grand Admiral Karl Doenitz. General Lindemann promptly wired a message of allegiance to the new "Führer," and ordered resistance continued in Denmark. A new wave of repression set in but the Gestapo was losing control. King Christian was ready to summon Parliament and form a new government. Throughout the day he conferred with Vilhelm Buhl, the premier deposed by the Germans in 1943. In Copenhagen, that night, underground papers were sold openly on the streets. On May 3, with British troops reported at the Danish-German border, German authority disintegrated swiftly throughout the kingdom. Although General Lin-

demann and the Gestapo chiefs did their utmost to halt defections, local German commanders in many places offered to surrender to Danish resistance forces, but they were told that piecemeal surrender could not be accepted.

On May 4 the complete surrender of German forces in Denmark was announced from General Eisenhower's headquarters. The Germans agreed to lay down their arms the following day at 2 A.M. At the request of King Christian, Mr. Buhl formed a new government with John Christmas Moeller as foreign minister and prominent resistance leaders in many key positions. Within a few minutes of the announcement of the German surrender, Copenhagen became the scene of tumultuous celebrations which lasted for days. British troops arrived in the city on the night of May 5. The popular joy was marred, however, when two German cruisers anchored in Copenhagen harbor unexpectedly opened fire on the city and Danish quisling forces attempted sporadic resistance. A total of 59 persons were killed and 386 wounded in these clashes.

Complete calm was restored on May 6, as a country-wide roundup of Danish traitors and collaborationists got under way. Within a few hours, 10,000 persons had been taken into custody by the "Freedom Fighters" now operating under the command of Gen. Ebbe Goertz of the Danish Army, who had been officially recognized by General Eisenhower. Among those arrested were Fritz Clausen, leader of the Danish Nazi Party; Jens Moeller, leader of the German minority in South Jutland; K. B. Martinsen, former chief of the terroristic Schalburg Corps; and the German minister and head of the civilian administration, Dr. Werner Best.

Parliament was convened by royal rescript on May 7 and formally opened two days later. Half a million Danes gave King Christian a tremendous ovation as he drove to Christianborg Castle for the opening ceremony. Field Marshal Sir Bernard L. Montgomery was received by the king on May 12 and awarded the highest Danish decoration.

That Denmark had been at war with Germany since August 29, 1943—the date when Danish self-government was abolished by the Germans and the constitution was suspended—was the opinion expressed on May 21 by Foreign Minister Moeller. Although no formal declaration of war could be issued at the time, he said, the Allies had accepted the warlike situation prevailing for the past two years. In conformity with this view, the United Nations Security Conference at San Francisco, by a unanimous vote, invited Denmark on June 5 to become the 50th member of the United Nations.

Following the liberation, General Lindemann had been made responsible for the orderly evacuation of the approximately 300,000 German troops stationed in Denmark at the time. The majority of these having left the country by early June, Lindemann's task was regarded as finished and on June 6 British forces occupied the German headquarters at Silkeborg and took the general and his staff into custody for investigation by the international war crimes commission. On July 9 it was announced that SHAEF's mission in Denmark, headed by Maj. Gen. Robert H. Dewing, was about completed, and that the number of Allied officers remaining in the country would be further reduced. The last Allied troops were scheduled to leave Denmark by the end of September, when all German soldiers had been evacuated.

There was, however, one big repatriation problem left which turned out to be unexpectedly difficult of solution. In the closing months of the war, some 300,000 German civilians, mostly from the eastern part of Germany, had taken refuge in Denmark, where they were housed mostly in public schools; of Copenhagen's seventy schools, sixty-five were taken over for that purpose. After liberation, the Danes naturally pressed for the return of these refugees to Germany, but none of the major Allies showed any willingness to receive them, each pleading that its zone of occupation in Germany already was overcrowded. It looked as though the Danes would have to play involuntary hosts to these Germans for another year or so.

Economic problems also weighed heavily on the minds of the new Danish government. Thanks to the country's highly developed livestock and dairy industry, the food situation was good—better, in fact, than in any other European country—and shipments of butter, eggs, and bacon to Great Britain were promptly resumed, but industry was confronted with a crippling shortage of raw materials, especially coal. Germany was out as a supplier of coal and Britain could offer only a small quantity, barely sufficient for the most urgent public services. To relieve the fuel situation somewhat, 80,000 men were sent out to dig peat during the summer. A provisional estimate of the cost of five years of Nazi occupation placed the total at around 9,000,000,000 kroner.

The new Danish government, conscious that it had not been formed according to normal parliamentary procedure, immediately took steps to organize general elections. These were originally scheduled for September, but technical reasons made it imperative to postpone them until October. Meanwhile, the government was generally accepted as being fully representative of the nation and of the approximate strength of the parties. The Communists, who had been outlawed during the Nazi occupation, also were represented in the Cabinet, for the first time.

The election, held October 30, resulted in a substantial decrease in Social-Democratic votes, and a corresponding gain for the Communists. Party strength in the new Folketing is divided as follows: Social-Democrats: 48 seats (previously 66); Agrarians, 38 (28); Conservatives, 26 (31); Communits, 18 (3); Liberals, 12 (13); others, 7.

On October 31, the Buhl government resigned and a week later, Knud Kristensen, leader of the Agrarian party, formed a new Cabinet.

DENTAL ASSOCIATION, American. See AMERICAN DENTAL ASSOCIATION.

DENTISTRY. The activities of dentistry in 1945 were again dominated by the various war influences, both before and after V-E and V-J days. Up to the time of the Japanese surrender there was a continuing demand for dental officers, confined largely, however, to the navy. Even before the end of the war in Europe the army indicated that it would seek no more dental officers. The navy, on the other hand, anticipating increasing demands for dental service in the Pacific theater, issued in April an urgent call for increased dental officer enrolment. Soon after the Japanese surrender, however, the enrolment of such officers was suspended. During this period the War Manpower Commission, recognizing statements of the Procurement and Assignment Service regarding civilian needs, declared that dental graduates not accepted for commission by

the navy should apply for commission in the U.S. Public Health Service or for internships in charitable dental clinics, hospitals, etc., which were recognized as essential to public health. Recruitment to those services as a result of this action was well above even prewar level and permitted more complete and more extended dental care by such institutions.

Dental Infection and Injury in the Army.—Vincent's stomatitis, or trench mouth, a real and serious scourge of the First World War has presented no real problem in this war, either overseas or in the United States. The overseas rate did not usually go above 2.5 per thousand and dropped to 1.5 per thousand in 1945. In the United States the rate was much higher. In this war there was no evidence of relationship between engagement in combat and the frequency of Vincent's stomatitis. As would be expected the rate for fractured jaws and associated injuries was closely related to combat, ranging from 15 to 26 per hundred thousand. The rate in the United States ranged between 5 and 8 per hundred thousand. Cellulitis resulting from dental infection had a higher incidence rate, as high as 40 per hundred thousand at one time, but was not appreciably higher among combat than among non-combat troops; this is probably a reflection of the generally poor oral condition of the men before induction and the tendency therefore for them to develop infections of the tissues adjacent to the teeth either from latent infection or as a result of required dental operations.

The figures on denture construction in the United States as reported in the Army Medical Bulletin in June 1945 show a rise from 2 per thousand men in 1942 to 8.3 in 1943, 16.2 in 1944, with a high of 19.95 in April of that year. In January 1945 the rate dropped to 14.9. Overseas the rates were much lower, due to the requirement that men in need of dentures be fitted before embarkation. Considerable repair work was needed, however, in the European theater, the hard biscuits of K rations being one factor responsible therefor.

In a recent release it was stated that from Pearl Harbor through April 1945, the Army Dental Corps accomplished the following: fillings 67,000,000; extractions 15,600,000; dentures 2,246,000; bridges 231,000; prophylaxis 8,800,000. This means that for every 100 men inducted into the army there were 170 extractions and 740 fillings.

Dental Education.—The year 1945 saw an increasing effort, begun in the earlier years of the decade, to bring Latin American dentists to the United States to learn new technics and to become familiar with standardized procedures. Considerable attention was given to instruction in public health procedures because of the growing recognition of the part dental care plays in public health programs. The visits of these dentists to various dental and public health schools were made under the auspices of the United States Department of State and the American Dental Association. In return, several prominent dental educators have visited some of the Latin American republics, lecturing and giving demonstrations of dental methods before the dental societies and dental schools in those countries.

Through the courtesy of the Victoria Dental Association of Australia, certain of its meetings were designated as "American" nights with programs presented by officers of the U.S. Army Dental Corps stationed there. In November 1944 an interallied dental meeting was held with representation from Australia, the United States and the Netherlands East Indies.

Early in 1945 Columbia University announced the merger of its dental school with the medical school, with control vested in a faculty of medicine in which medicine, dentistry, nursing and public health have representation, and which is headed by a dean who is a physician. The dental faculty is headed by a dentist with the title of associate dean. The object was to provide for dental students a more intensive training in so-called medical subjects with ultimate closer integration of the practice of medicine and dentistry. Since this action involved a definite loss of autonomy which this dental school, together with all but one other American dental school, had enjoyed previously and since it was feared by dentists generally that such action, if adopted by other universities, would result in a lowering of the standards of American dentistry, it met with nearly universal disapproval in the American dental profession.

The Netherlands East Indies government, with the aid of several United States dental schools and other institutions, began actively planning during the year to reopen and reorganize its dental school in Batavia, Java, as soon as conditions permit.

Postwar Planning.—The dental profession, aware of the extent and seriousness of the dental problem in the American population and considering that not only dental service but dental research is needed to cope with it, secured the introduction into Congress of two bills. One of these would set up a National Dental Research Council; the other would empower Congress to make grants-in-aid to the states to provide dental care under approved programs. At a hearing before the Pepper Committee on Health and Education, held in June, Surgeon General Parran of the U.S. Public Health Service gave testimony in support of these bills. He stated that the best available figures indicated that for the entire population the needs were as follows: extractions 238,500,000; fillings 632,000,000; prophylaxis 125,000,000; crowns and bridges 39,500,000; dentures 20,000,000; miscellaneous treatments 20,000,000. The service currently received is far below this figure as shown by the following table, presented in terms of need for the individual:

	Needed	Received annually
Extractions	1.9	0.03
Fillings	5.0	0.4
Examination and prophylaxis	1.0	0.03
Crowns and bridges	0.3	0.04
Dentures	0.2	0.01

Dr. Parran stated that the problem is not one of economic resources of the people alone, but of number and distribution of dentists (dentists tend to gravitate to areas with higher per capita income). There are about 70,000 dentists in the United States on a peacetime basis. The present ratio of dentists to population on an over-all basis is 1 to 1,800 (a desirable minimum ratio is held to be about 1 to 900).

It has been estimated that if complete initial care (attending to accumulated need) were to be undertaken, only 2,000,000 adults out of a total population of 130,000,000 could receive such service. Put in another way, each practicing dentist could give but one hour of service per year to each person in the United States.

The figures given above on the extent of dental service needed are for accumulated need. If all that need were met there would still be a very great annual need for dental care. It has been es-

timated that in any given year 33,000,000 new fillings would be needed for children between the ages of 6 and 18; for adults 79,000,000 fillings, to say nothing of other treatments needed. Recognizing this situation, dentists are stressing the necessity for planning to put every person as rapidly as possible on a maintenance basis. Emphasis would be laid on early dental care for children with maintenance care for each child as he advances in years.

Postwar planning involves dentists as well as their potential patients, especially dentists who will leave the military service when the army and navy are reduced to peacetime size. Many of them went into the armed forces immediately from college and have never had a practice. This group numbering around 5,000 must be absorbed into civilian practice within a short period in contrast with the approximately 1,600 who formerly entered practice each year. Dentists who left their practices to serve their country will expect to take up as nearly as possible where they left off. The dental societies have been actively planning to aid these men—the younger ones to find suitable locations, the older ones to find offices and also get their former patients back. Postgraduate courses on new technics developed in civilian dentistry during the war will be offered by dental societies and dental colleges.

Dental Research.—Dental research is carried on largely in the dental colleges, the research workers being also teachers. Shortage of teachers during the war put additional teaching loads on the research group and forced some curtailment of effort in this field.

Much attention has been given to studies of the value and best methods of use of the sulfa drugs and (lately) penicillin in control of some of the more severe dental infections such as cellulitis and Vincent's stomatitis. The study of war injuries of the jaws and adjacent structures has resulted in the development of improved methods of reducing jaw fractures and securing satisfactory cosmetic effects in handling the associated soft tissue wounds.

A bill (mentioned above) to support and encourage dental research was introduced into Congress. It would provide for the erection of a suitable building in Bethesda, Md., to house the National Dental Research Council, the creation of which it also would provide for. It also would provide for grants to be made to dental colleges and other institutions to aid in carrying on specific research projects.

JOHN OPPIE MCCALL,
Director, The Murry and Leonie Guggenheim Dental Clinic, New York City.

D'ENTRECASTEAUX. See PAPUA, TERRITORY OF.

DESBOROUGH, LORD, the former WILLIAM HENRY GRENFELL, English sportsman: b. Oct. 30, 1855; d. Panshanger Park, Hertfordshire, England, Jan. 9, 1945. During his long career, Lord Desborough was known both for his personal accomplishments in various fields of sport and for his assistance in the promotion of Olympic games and athletic organizations. He was president of the Olympic games in 1908, and organized the first Olympics held in England that same year.

DEVERS, Jacob Loucks, United States Army officer: b. York, Pa., Sept. 8, 1887. General Devers succeeded Gen. Joseph W. Stilwell as commanding general of United States Army Ground Forces on June 29, 1945. As chief of the Allied Sixth Army Group in Europe in the spring of 1945, he accepted the surrender (May 6) of German Army Group G—estimated at 200,000-400,000 troops—which ended resistance in western Austria and Bavaria. General Devers is a graduate of the United States Military Academy. In the First World War, he was executive officer of the School of Fire, Fort Sill, Oklahoma. From 1919 to 1924, he taught at West Point. In June 1939, he was assigned to the Panama Canal Department, and as chief of staff, directed mechanization of canal defenses. In the latter half of 1940, he was senior army member of the board appointed by President Roosevelt to locate the bases acquired from Britain. Promoted major general in October 1940, he was named commander of the 9th Division at Fort Bragg, North Carolina, and supervised that camp's enormous expansion program. He was transferred to the Armored Force command at Fort Knox, Kentucky, in July 1941, and there headed six panzer divisions, besides unattached tank battalions and a tank corps school. In September 1942, he was promoted lieutenant general, and in October 1943, given the Distinguished Service Medal for his service in the European theater. He was for a time deputy commander in chief to British Gen. Sir Henry Maitland Wilson in the Mediterranean theater. He was given command of the Allied Sixth Army Group in September 1944. On March 28, 1945, Devers was promoted to the rank of full general (temporary).

DIAMONDS. See GEM STONES.

DIETETICS. See BIOCHEMISTRY; NUTRITION.

DISASTERS. Below are listed in chronological order the principal disasters of 1945:

Jan. 9—Pan American Airways Clipper crashes at Port of Spain, Trinidad, killing 23 passengers.

10—American Airlines plane crashes and burns in canyon near Burbank, Calif., killing 24 persons.

18—Undetermined number of American troops killed and injured when train carrying more than 500 persons plows through station of St. Valery-en-Caux, 40 miles north of Rouen, France.

25—Soviet Ambassador to Mexico Constantine O. Oumansky and Mrs. Oumansky killed when Mexican military plane bursts into flames and crashes outside airport limits less than 2 minutes after take-off in Mexico City; 7 others killed, 2 seriously injured.

Feb. 1—Twelve members of staffs of British Foreign Office, War Office, and Air Ministry die in air crash on way to Big Three Conference.

5—Nineteen are dead, 20 missing when American tanker *Springhill* explodes in New York Bay at 8:57 A.M.

9—Blizzard kills 20 persons in Massachusetts, Maine, Rhode Island, and Connecticut, damage runs to millions.

12—Tornado kills 33, injures hundreds, and leaves thousands homeless in Mississippi and Alabama.

13—Twin-engined navy air transport crashes in San Francisco Bay at dawn, killing all 24 persons on board.

15—B-29 Superfortress crashes into Flushing Bay, N.Y., killing 5 of crew of 10.

19—Transport plane crashes on take-off from Italian field, killing 10 persons, including 3 officers of Lieut. Gen. Mark W. Clark's staff.

23—American Airlines plane, bound from New York to Los Angeles, crashes into mountainside near Cedar Springs, Va., killing 17 of 22 passengers and crew.

March 3—Crash of army transport plane in Europe, flying from England to Paris, results in death of 16 persons, including 7 USO entertainers.

5—Seven persons killed, 15 hurt as 2-engined C-60 cargo plane crashes and explodes at Wright Field (Dayton, Ohio), setting fire to hangar.

6—Worst Ohio River flood since 1937 results in death of 8 persons in 4 states.

7—Ohio River flood reaches crest of 69.2 feet, 17.2 feet above flood stage.

14—Storm of hurricane violence strikes B-29 Superfortress base in southeast Asia, killing 8 men, injuring 150, damaging about 25 cargo and transport aircraft.

28—Rio Piabanha overflows at Petropolis, Brazil, 40 miles north of Rio de Janeiro, resulting in death of 40 persons; damage estimated at approximately $1,000,000.

April 5—Red River in Louisiana floods central section of state, topping levees, flooding farmlands, sweeping away livestock herds.

6—Fire destroys Pemberton Lumber and Millwork Corporation, Pemberton, N.J.; total damage estimated at $1,400,000.

12—Tornadoes rip many communities in Oklahoma, killing at least 58 persons, injuring and leaving homeless hundreds more.

Tornado death toll in Oklahoma, Arkansas, and Missouri, reaches 112.

American freighter, Allied tanker collide off southeast coast of Massachusetts, killing at least 19 men; 3 more missing and 38 merchant seamen injured.

15—Pennsylvania Central Airlines plane crashes on Chestnut Ridge near Morgantown, W.Va., killing 17 passengers and crew of 3.

20—Army transport plane crashes, burns 3 miles from Sweetwater, Texas, killing 25 officers and men.

27—Chartered transport plane crashes at Washington, D.C., National Airport, killing 3, injuring 9 persons.

May 5—Navy announces 7 men killed, 2 injured in patrol bomber crash on southern slope of Mount Tamalpais, San Rafael, Calif.

25—Explosion in army's chemical warfare service headquarters at Edgewood Arsenal, Maryland, wrecks 2 buildings; causes deaths of 11 persons, injuries to 52.

June 4—At least 15 Americans and Germans killed, 80 injured when 2 mysterious explosions wreck U. S. military government police headquarters in Bremen, Germany.

15—Passenger train collides with derailed freight train near Milton, Pa., killing 18, injuring 32 passengers.

25—Twelve persons killed, 28 injured when bus loaded with soldiers strikes cow 4 miles south of Joplin, Mo., plunges down 10-foot embankment, and overturns.

July 7—*Dauntless Dotty*, first Superfortress to bomb Tokyo, Nov. 24, 1944, crashes in take-off from Kwajalem en route to United States, killing 10 of its 13 passengers and crew.

10—Severe electrical storm in Phillipsburg, N. J., area kills at least 6 persons, causes huge property damage.

17—Explosion occurs on 5,265-ton *Hamonic*, Great Lakes passenger-freight ship operated by Canada Steamship Lines, while it is docked at Sarnia, Ontario, injuring more than 150 persons, causing heavy damage to ship.

18—Explosions at Royal Canadian Naval Arsenal rock city of Halifax, Nova Scotia, killing 2 persons, injuring more than 100.

23—Serious floods develop in northern New Jersey and Rockland County, N. Y., and in region east of Albany, extending into Berkshire Mountain area of Massachusetts, result of torrential rains which take toll of at least 3 lives, cause property damage estimated at upward of $4,000,000, of which $2,000,000 is in northern New Jersey.

28—Twin-engined B-25 army bomber, lost in fog, crashes into 78th and 79th floors of Empire State building, New York City, 913 feet above street level, causing considerable damage to building, killing 13 persons, injuring 26.

Aug. 9—Two sections of Great Northern Railway's *Empire Builder* collide at Michigan, N. Dak., killing 34 persons, injuring 50.

13—Fire breaks out at Export Box and Sealer Company, Detroit (Mich.) boxing factory, bringing death to 11 women, 2 men, injuries to 52 others.

17—Explosion of German ammunition on Oslo, Norway, waterfront kills at least 58 persons, injures hundreds of others.

25—Two B-29 Superfortresses crash in the air 15,000 feet above Weatherford, Texas, killing 18 airmen, injuring remaining 2.

27—Tropical 100-mile hurricane heads inland in vicinity of Houston, Texas, causing damage running into millions of dollars.

American transport plane bound for Atsugi airfield in Japan crashes on Okinawa airfield runway, killing about 20 Americans, destroying valuable communications equipment.

30—Fire sweeps Kaiser Oregon shipyards at Portland, Oreg.; damage estimated at $3,000,000.

Sept. 3—U. S. death toll during Labor Day holiday reaches 341, with automobile traffic heavy.

4—Santa Fe Railway's eastbound *California Limited* plows into ditch near Arcadia, Calif., killing 15 persons, injuring 40; apparently hit open switch or broken rail.

Oct. 18—Crash of crowded IRT subway train in New York City results in death to 1 passenger, injuries to 40.

19—Navy announces casualties occasioned by Okinawa typhoon of October 10 now total 122, including 43 dead, 30 missing, 47 injured.

21—Two Rutgers University students and a young woman killed, 6 other persons injured when fire destroys Sigma Alpha Mu fraternity house in Brunswick, N. J.

22—Army's Alaskan Department announces death of 5 officers and 17 enlisted men in C-47 transport plane crash in swamp southwest of Elmendorf Field.

Nov. 4—Consolidated Airlines LB-30 transport flying from Honolulu to San Francisco crashes in the Pacific about 450 miles northeast of Hawaii; 7 persons killed, 8 rescued, 12 missing.

8—Three officials of Transcontinental and Western Airlines and crew of 5 men killed in crash of U. S. Army plane at Asmoro, Eritrea.

30—Two-day storm sweeps across northeastern section of U. S., leaving in its wake at least 34 dead, many injured, heavy property damage, disrupted communications.

Dec. 6—Five Navy torpedo bombers, with 14 men aboard and navy rescue plane, with 13 crew members, lost off Florida east coast.

8—Twin-engined transport plane crashes at Billings, Mont., killing 19 of 23 occupants, most of them army overseas veterans.

16—At least 7 persons are killed, 65 injured when Seaboard Air Line Railway's Florida-bound train *Silver Meteor* crashes into northbound *Sun Queen* near Kellock, S.C.

25—Fire in Niles Street Hospital, Hartford, Conn., causes death of 17 people, injury to 27 others.

28—Twenty-three persons killed, 30 seriously injured by explosion of ammunition dump at Codroipo, near Udine, Italy.

U.S. traffic toll in 1945 placed by National Safety Council at 29,000 killed, more than 1,000,000 injured.

31—Rescuers give up hope of recovering bodies of 20 miners thought to have perished in mine explosion near Pineville, Ky., on December 26; seal chamber in which they are believed to have died.

DISCIPLES OF CHRIST. A communion known also as the Churches of Christ and Christian Churches, sprang from a movement for Christian unity, which arose in American Presbyterian circles at the beginning of the 19th century, under Barton W. Stone, in Kentucky, and Thomas and Alexander Campbell, in western Pennsylvania. This is the largest religious body having its origin in America. It was fifth among Protestant communions in the United States in 1945. In policy the churches are congregational. There are six major agencies of the communion: The United Christian Missionary Society; Board of Higher Education; Association for the Promotion of Christian Unity; Pension Fund; National Benevolent Association; Board of Church Extension; besides the missionary societies of the several states and provinces of Canada. These agencies are corporations and are affiliated with the International Convention of Disciples of Christ which meets annually. The general missionary work both home and foreign of the churches is administered through The United Christian Missionary Society, with headquarters at 222 Downey Avenue, Indianapolis, Ind. Its board of managers of 120 is composed of 60 men and 60 women. The foreign missionary work in 1945 embraced the Belgian Congo in Africa, China, India, Jamaica, Japan, Mexico, Philippine Islands, Puerto Rico, Argentina, Paraguay and Batang, on the border of Tibet. However, because of the war, work in Japan and the Philippine Islands was suspended.

Statistics of the communion show that during the year there were 4,430 baptisms in the foreign fields. The 317 mission schools had a total enrolment of 13,374. The communion maintained 11 hospitals and 20 dispensaries which gave 653,111 treatments. The Church Extension Fund amounted to $3,003,955.06 with outstanding loans to 265 churches. The Pension Fund for the ministry showed assets of $4,635,793.41. One hundred young people's conferences were held. Work in America was conducted among the French, Highlanders, European immigrants, Negroes, Orientals, Spanish-Americans and Mexicans. The National Benevolent Association maintained six homes for children, and an equal number of homes for the aged. In 1945, 28 colleges, universities, Bible colleges and foundations co-operated with the Board of Higher Education. The total church membership throughout the world in 1945 was 1,943,441; and in the United States and Canada, 1,776,878. The Bible school enrolment for the world was 1,113,478, and for the United States and Canada, 1,013,679. Contributions, missionary, benevolent and educational, reported for the fiscal year in the United States and Canada, totaled $8,759,872.65.

Among the periodicals published by the communion are *World Call, The Christian-Evangelist, Christian Standard,* and *Front Rank.* The president of the International Convention was Dr. M. E. Sadler, Fort Worth, Texas.

HAZEL I. SCOTT,
Secretary, The United Christian Missionary Society.

DISTILLED SPIRITS. Production.—Beverage distilled spirits production during the fiscal year ended June 30, 1945 amounted to 73,993,337 tax gallons, an increase of 207 per cent over 1944. The following table shows the production of beverage distilled spirits during the fiscal years 1945 and 1944 in tax gallons:

	1945	1944
Whiskey	41,562,303	.....
Rum	2,887,794	2,212,457
Gin	2,058,894	.....
Brandy	26,584,256	21,592,388
Total	73,093,337	23,804,845

The whiskey production during the fiscal year 1945 was confined to the months of August 1944 and January 1945, periods during which the nation's whiskey producing facilities were released by the government from war alcohol production. No corn was released by the government for beverage production during August; consequently no bourbon whiskey was made during that month, although a limited quantity was permitted during the January production period.

In addition to the above production, registered distilleries produced 54,752,833 tax gallons of beverage neutral spirits and industrial alcohol plants produced 20,182,503 tax gallons of spirits for beverage purposes during such times as their facilities were released by the government. The total neutral spirits production amounted to 74,935,336 tax gallons.

Withdrawals.—Tax-paid withdrawals of distilled spirits during the fiscal year 1944–45 amounted to 142,334,194 tax gallons, an increase of 57.3 per cent over 1944. Withdrawals were distributed as follows: whiskey, 63,900,310 tax gallons (out of which total 9,586,865 were bottled-in-bond; rum, 540,192; gin, 1,946,822; brandy, 4,417,421; high-proof spirits, 43,692,885; and alcohol, 27,836,564. Withdrawals of whiskey were 8.6 per cent over 1944.

Rectified Spirits.—Rectifying plants during the fiscal year 1944–45 used 119,561,805 proof gallons of domestic and imported spirits, an increase of 76 per cent over 1944, and produced 118,830,492 proof gallons, 75.6 per cent over 1944. Rectifying plants and tax-paid bottling houses produced 162,028,875 wine gallons of rectified and unrectified products, an increase of 32 per cent over 1944.

Output for Consumption.—During the calendar year 1944 the bottled output of domestic distilled spirits plus imported products bottled after withdrawal from customs custody amounted to 150,272,565 wine gallons as compared with 131,077,698 during 1943. Of the 1944 total, whiskey amounted to 119,111,693 wine gallons; gin, 6,003,273; rum, 9,114,422; brandy, 4,185,373; and cordials, liqueurs, etc., 11,857,565. The whiskey output was distributed as follows: bottled-in-bond, 9,981,515; blended, 90,473,533; and straight, 18,656,645 wine gallons.

Apparent Consumption.—Based upon tax collections in the license states and upon actual wholesale and retail sales in the monopoly states, reports compiled by the Distilled Spirits Institute, Inc., Washington, D.C. indicate that the apparent consumption of distilled spirits in the 45 "wet" states and the District of Columbia amounted to 166,382,804 wine gallons during the calendar year 1944, an increase of 14.3 per cent over 1943. Apparent consumption in the 28 license states and the District of Columbia amounted to 124,490,602 gallons, an increase of 17.6 per cent and monopoly state consumption was 41,892,202 gallons, an increase of 14.3 per cent.

The following table shows the five leading states in this category during the calendar year 1944 and indicates the type of control:

	Wine Gallons	
(1) New York	19,450,709	(license)
(2) California	18,634,708	(license)
(3) Illinois	12,810,252	(license)
(4) Pennsylvania	9,913,464	(monopoly)
(5) Ohio	7,156,590	(monopoly)

Stocks.—The following table shows the stocks of distilled spirits remaining in internal-revenue bonded warehouses at original entry gauge as of June 30, 1945 compared with the end of the preceding fiscal year (losses from leakage, evaporation, etc. not being determined until withdrawn):

	Tax Gallons	
	1945	1944
Whiskey	307,620,025	348,646,381
Rum	1,885,138	1,370,533
Gin	117,727	14,608
Brandy	12,371,296	11,528,107
Total	321,994,186	361,559,629

Revenues.—Total federal revenue from distilled spirits during the fiscal year ended June 30, 1945 amounted to $1,617,262,318, an increase of 59.4 per cent over 1944, or 70 per cent of the total revenue of $2,309,865,790 from all alcoholic beverages.

Excise taxes from domestic distilled spirits amounted to $1,282,309,099 and from imported distilled spirits, $199,690,666, a total of $1,481,999,765, or 65.3 per cent above 1944. This increase was due principally to a war-time tax rate of $9 per proof gallon, the rate having been increased from $6 per proof gallon effective April 1, 1944. The remainder of the distilled spirits taxes was attributable to the sale of container stamps, rectification tax, occupational taxes, floor taxes, seizures, penalties, etc.

Imports.—Based on report of the Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce, the following table shows distilled spirits imported for consumption during the calendar year 1944:

	Proof Gallons
Whiskey	7,690,808
Rum	7,450,065
Gin	1,872,017
Brandy	4,382,896
Cordials and Compounds	1,310,465
Bitters	64,116
Ethyl Alcohol for Beverages	10,642,741
Total Dutiable Imports	33,413,108
Shipment from Non-Contiguous Territories	
From Puerto Rico	
Cordials	135,767
Rum	6,740,500
	6,876,267
From Virgin Islands	
Rum	2,661,195
Whiskey	3,986
	2,665,181
Total Duty-Free Imports	9,541,448
Total Imports for Consumption	42,954,556

Exports.—Exports of distilled spirits from the United States during the calendar year 1944 were as follows:

	Proof Gallons
Whiskey	385,720
Rum	7,213
Other Distilled Liquors and Compounds Containing Spirits	21,279
Total	414,212
U.S. Shipments to Non-contiguous Territories	
To Alaska	
Whiskey	435,374
Other Distilled Spirits	118,754
	554,128
To Hawaii	
Rum	322,275
Whiskey	192,112
Other Distilled Spirits	113,740
	628,127
To Virgin Islands	
Rum	5,421
Whiskey	6,231
Other Distilled Spirits	759
	12,411
To Puerto Rico	
Rum	19,635
Whiskey	41,209
Other Distilled Spirits	988
	61,832
Total Shipments to Non-Contiguous Territories	1,256,498
Total Exports	1,670,710

Owsley Brown,
Chairman of the Board, Brown-Forman Distillers Corporation, Louisville, Ky.

DISTRICT OF COLUMBIA. According to the 1940 census, the District of Columbia and its coextensive city of Washington then had a population of 663,091, compared with 486,869 in 1930, an increase of 36.2 per cent. The district has a total land area of 61 square miles and is entirely urban, the present population density averaging 10,870.3 inhabitants per square mile.

Government.—The District of Columbia is administered by a board of three commissioners, two of whom are appointed from civil life by the president of the United States and confirmed by the Senate, the third being detailed by the president from the Engineering Corps of the United States Army. District commissioners have ordinary municipal powers. Legislative power is vested in the Congress of the United States; however, the advice of the board of commissioners is sought before legislation is enacted. Residents of the District do not vote. Revenues are derived from a general real and personal property tax, corporation taxes, licenses, and appropriations from the Treasury of the United States.

Education.—Public elementary schools (1944–45), 133[1]; teachers, 1,580; pupils, 57,706; average yearly salary of elementary school teachers, $1,400–$2,200[2]. Public junior high schools, 19; teachers, 770; students, 20,769. Public vocational high schools, 5; teachers, 96; students, 1,702. Public senior high schools, 11; teachers, 681; students, 15,262. Average yearly salary of public vocational and junior high school teachers, $1,600–$3,200[2]; of public senior high school teachers, $1,800–$3,200[2]. There are 2 teachers colleges in the District. Total appropriation for education (1945), $14,943,770. District superintendent of schools, Robert L. Haycock.

Finances.—Following is a statement of the District's finances for the fiscal year 1945, supplied by the District Auditor's office:

Balance in treasury, beginning of 1945 fiscal year	$27,362,902.76
Receipts, 1945	70,770,673.88
Total	$98,133,576.64
Disbursements, 1945	68,208,054.35
Balance, beginning of 1946 fiscal year	$29,925,522.29

[1] Number of school buildings includes six annexes to elementary schools.

[2] Salary figures do not include $300 bonus. Teachers' Salary Act of 1945, effective July 1, 1945, replaced the $300 additional compensation paid each educational employee from Dec. 1, 1942 to June 30, 1945.

DJIBOUTI. See French Somaliland.

DOBRUJA. A territory in southeastern Europe, divided between Rumania and Bulgaria. Its boundaries are the Danube River on the north and west, Bulgaria proper on the south (along a line drawn from above Turtucaia on the Danube to a point north of Varna on the Black Sea), and the Black Sea on the east. Its total area is 8,979 square miles, and its population (1937) 906,588, made up largely of Bulgarians, Rumanians, Circassians, Greeks, Tatars, Jews, and Turks. Until 1878, Dobruja formed part of Bulgaria, but in that year it was assigned to Rumania by the Treaty of Berlin to compensate for the loss of Bessarabia which went to Russia. Bulgaria never renounced her claim on southern Dobruja, and frequent agitation for its return led to a tentative agreement with Rumania in August 1940 for its transfer. On Sept. 7, 1940, by the Treaty of Craiova, Rumania ceded southern Dobruja, a territory some 3,000 square miles in extent, with a population of about 375,000, to Bulgaria. Dobruja is exceptionally fertile. Chief among the crops are cereals, beets, grapes, and tobacco. Mineral resources include copper and coal. Constanţa (estimated pop. 60,490 in 1937), the most important Black Sea port of the province, from which an oil pipeline runs to the Rumanian oilfields, is Rumania's main sea outlet.

In August 1944 the Rumanian part of Dobruja was occupied by Soviet forces in their drive into the Balkans, Constanţa being taken on August 29. On September 9, in the four-day war between the USSR and Bulgaria, the Red armies occupied the Bulgarian part, but by the terms of the armistice signed by Bulgaria with the Allies at Moscow on October 28 she was allowed to retain it. In November the first shipments of industrial and other equipment looted by Rumanian armies in the Ukraine left Constanţa for Odessa.

DODECANESE (or SOUTHERN SPORADES) ISLANDS. A group of 13 islands in the Aegean Sea near the coast of Asia Minor, northeast of Crete. Known economically for sponge fishing, wine and olive cultivation, the islands have been important throughout history because of their value as steppingstones for invasion or migration from Asia Minor to Greece, and vice versa. Overwhelmingly Greek in population and tradition, they were captured from Turkey by Italy in 1912, ceded to Greece by treaties signed in 1919 and 1920, which, however, were renounced in 1922, and since held by Italy. Rhodes, at the southeast end of the archipelago, largest and best-known of the islands, and Leros, near the north end of the chain, were made into military strongholds by the Italian Fascists. Cos, second to Rhodes in size, was seized by the Axis forces after the fall of Greece in April 1941.

On Sept. 8, 1943, the Greek government-in-exile demanded that the Italians cede the islands to Greece. Soon afterwards they became the scene of a series of battles between the Germans and the Allies, which left the Germans in control, the British announcing on November 23 their evacuation of Samos, last Aegean island of consequence held by the Allies off Turkey.

During the remainder of 1943 and in January and February 1944, Allied air forces carried on a series of raids around Leros and Rhodes. On July 13-14 a British and Greek commando force killed or captured all the enemy garrisons and destroyed all defense installations on Simi (Symi). Simi, 4 miles from the coast of Turkey, has a well-protected harbor, which makes it a key shipping point. It had been evacuated by the British in October 1943. By early October 1944 the Dodecanese Islands in general had become rear-guard German outposts. On March 15, 1945, three of the liberated islands—Simi, Nisiro and Stampalia—requested union with Greece. Four simultaneous Anglo-Greek raids were made on Rhodes on May 1 climaxing a series that caused enemy casualties of 3,200. Within two days after May 8 the remaining German garrisons surrendered.

DOENITZ, Karl, German naval officer: b. Berlin-Gruenau, Germany, Sept. 16, 1891. Creator and commander of Germany's submarine fleet, and in 1943, Admiral Raeder's successor as commander in chief of the German Navy, Grand Admiral Doenitz proclaimed himself Reichsfuhrer "by Hitler's appointment," on May 1, 1945 (at the same time announcement was made of Hitler's unconfirmed death in the battle of Berlin), and gathered about him members of the German High Command and high Nazi officials. On May 6, Doenitz authorized the surrender to the Allies of Nazi armies on all fronts. In the days immediately following capitulation, his so-called "surrender government" at Flensburg put itself forward as the regime best qualified to deal with the task of bringing peace to Germany. On May 23, however, the Doenitz government was dissolved. Doenitz, Chief of Staff Col. Gen. Gustav Jodl, and Naval Chief of Staff Gen. Admiral Hans von Friedeburg were arrested by a SHAEF control party, as were all governmental ministers and civilian staff, and some 400 officers and 2,500 enlisted men of the once great German Oberkomande Wehrmacht. It was then revealed that the Doenitz government and the Oberkomande Wehrmacht had been allowed to function only so long as their services were required to speed disbandment of the defeated German Army.

A "severe, seamy-faced, beak-nosed little man," who urged his seamen to avoid any act of humanity, Admiral Doenitz was one of the Allies bitterest and most formidable enemies. At the height of the battle for the Atlantic, one magazine writer said, "his U-boat campaign is fought for keeps and one of its objects is to put terror into the sailors of the U. S. Merchant Marine." A veteran of the First World War, Doenitz is still of the opinion that Germany would have won that conflict by 1920, had there been a continuance of unrestricted submarine warfare. He joined the German Navy at the age of 18; transferred to the submarine service; and was later U-boat commander in the Mediterranean. In October 1918 he was taken prisoner after the sinking of *U-88* by a British patrol, and interned in England. He was confined for a time after the November 1918 armistice in an insane asylum at Manchester, and was later repatriated to Germany as insane. After his return, he remained with the tiny fleet left to Germany. Doenitz was one of the alleged Nazi war criminals held for trial before the international military tribunal in late 1945.

DOMINICA. See WINDWARD ISLANDS.

DOMINICAN REPUBLIC. A republic in the West Indies, occupying the eastern two thirds of the island of Santo Domingo, or Hispaniola, scene of the earliest European settlement in the New World. The Dominican Republic has an area of 19,325 square miles. Its population (numbering 2,029,054 on June 30, 1945) includes some creoles of Spanish ancestry but is mainly of mixed European, African, and Indian descent. European refugees are being settled on 26,000 acres of tax-exempt land set apart for their use at Sosua. The refugees, while not permitted to compete with the natives in raising the basic crops (sugar, cocoa, coffee, and tobacco) are guaranteed full civic rights.

The republic is composed of 17 provinces and the district of Santo Domingo. The capital is Ciudad Trujillo—syo͞o dăd′ tro͞o hē(l)′yō—(formerly Santo Domingo), which with its suburbs has a population of 115,232. Other important cities are Santiago de los Caballeros, Puerto Plata, San Pedro de Macoris, La Vega, La Romana, and Sanchez.

The island was discovered on Dec. 6, 1492, by Columbus on his first voyage to the new world. He called it La Española, or "Little Spain." The capital city was founded in 1496 by Bartolomé Colón, brother of the discoverer, and was for many years the center of Spanish power in America. In 1795 the colony of Santo Domingo was ceded to the French, who had colonized Haiti, the western end of the island. In 1808 the French were driven out, and Santo Domingo again became a colony of Spain. In 1821 it declared its independence, but in 1822 it was again taken over by the Haitians, who held it until 1844, when they were again expelled. In the same year, Santo Domingo became the Dominican Republic. In 1904, when the Dominican government defaulted in its debt payments, the United States began to collect the Dominican customs. In 1911 a series of revolts began, which led in 1916 to armed intervention and control by the United States. The United States Marines were withdrawn in 1924, but collection of the customs by the United States continued until 1941, when the Dominican government resumed responsibility for their collection and administration.

On Dec. 11, 1941, the Dominican Republic declared war on the Axis, and on Jan. 1, 1942, became one of the original signatories of the United Nations declaration. A new constitution, announced Jan. 10, 1942, provides for a representative form of government, with legislative, judicial, and executive branches. Legislative authority is vested in the Congress, which includes a Senate consisting of one member from each of the provinces and the District of Santo Domingo, and a Chamber of Deputies, with a minimum of two deputies from each province, with three from Santo Domingo. Members of both houses are chosen for 5 years by direct popular vote. Executive power is vested in the president, who is also elected by direct vote for 5 years. In the first general election held under the new constitution, on May 16, 1942, Gen. Rafael Leonidas Trujillo Molina was elected president, to serve until 1947. In this election, in which women voted for the first time, two women were elected to the Chamber and one to the Senate. The centennial celebration, held at Ciudad Trujillo and ended on Feb. 27, 1944, commemorated 100 years of national independence.

Military and Naval.—Military forces consist of

an army of about 300 officers and 3,000 men and the national police which, in addition to exercising police functions, provides a subsidiary force to the army. The republic has four coastal patrol boats and a small air force. Coastal artillery and other weapons were acquired by the government after December 1941 following declaration of war against Germany, Japan, and Italy. A Dominican graduate (in 1942) of the United States Military Academy at West Point is now military instructor in the Dominican Army.

Religion and Education.—All forms of worship are permitted, but Roman Catholicism is predominant. An archbishop, known as the Primate of the Indies, resides at Ciudad Trujillo, a papal nuncio having his residence at Port-au-Prince, the Haitian capital. Primary instruction is free and compulsory between the ages of 7 and 14. The schools are official, semiofficial, or private. There are 861 primary schools, 17 secondary schools, 14 normal schools, 60 technical schools, and the University of Santo Domingo (founded in 1538), with its eight professional faculties. In 1942 the government created 1,082 emergency schools, mainly in the rural areas. In 1943, 209,808 pupils were reported in all schools, and 1,120 at the university.

Climate and Natural Resources.—The climate of the republic is subject to two moderating influences: much of the interior is cool owing to high elevations; the coasts, swept by prevailing sea winds, have an average annual temperature of 78° F. Slightly more than half the total area is arable, but less than one fifth is under cultivation, the remainder being forested. The woods include cedar, satinwood, mahogany, lignum vitae, juniper, dyewoods, and pine, but much of the hardwood and pine has been cut. Mineral deposits include gold, copper, iron, coal, petroleum, silver, platinum, marble, and rock salt.

Agriculture.—Agriculture is the country's primary industry. Among the basic food crops are yucca, plantains, corn, and potatoes. Some poultry products, poultry, beans, and rice are exported especially to neighboring territories. Upward of 1,000,000 acres are kept in pasturage for livestock.

The main commercial (export) crop is sugar, with coffee and cacao (cocoa) next in importance. The 1944 sugar crop amounted to 512,000 metric tons; but, due to prolonged drought during the growing season, the 1945 harvest was not expected to exceed 430,000 tons. Although about 2,000 metric tons of leaf tobacco awaited shipment in warehouses during 1944, only 995 tons were exported. Coffee exports for 1944 totaling 8,212 metric tons valued at $2,009,173 were less than for 1943 (10,564 tons valued at $2,469,141); but the 1944–45 crop was estimated in April 1945, when more than 90 per cent had been warehoused, at 15,000 tons. Cocoa exports for 1944, amounting to 25,562 metric tons valued at $3,999,500, were second only to sugar in value. In June 1945 it was estimated that about 14,000 metric tons would be ready for market by August.

The government is endeavoring to diversify and improve agriculture and aid industry through legislation and state-sponsored experiments with special crops, such as soybeans, rubber and fibers.

Industry.—The country's growing industry and internal trade still depend mainly upon imports. In 1943 the fuel oil requirements of a leading Dominican electric company, source of power for essential industries, were 30,452 barrels, an increase of 128 per cent over the amount needed in 1941. Hence the government's concession to a subsidiary of a large American oil company, which in 1943 began additional drillings. In 1944 a cement factory with an expected annual capacity of 360,000 barrels, and a textile plant for the manufacture of cheap clothing hitherto imported were constructed.

Transport and Communication.—The republic has a good highway system, including 1,000 miles of first-class roads and about 1,500 miles of second-class and intercommunal roads. The United Dominican Railroad, 152 miles long, connects centers in the fertile Cibao region with the northern coast, and there are some hundreds of miles of private railways on the sugar plantations and other private estates.

The harbor of Ciudad Trujillo has been improved, to accommodate large ships, and in the fall of 1944 plans were underway for a $2,500,000 improvement of the chief sugar port, San Pedro de Macoris. The Dominican Republic, linked with the United States before the war by four steamship companies maintaining weekly passenger and freight service, has again been connected on a regular schedule with New Orleans and Buenos Aires with the arrival in Ciudad Trujillo on Sept. 14, 1944, of an Argentine motorship. The republic's merchant marine, which suffered heavily through enemy action, had by March gained four of the government's projected six new wooden motor-driven schooners.

Ciudad Trujillo has one of the best airports in Latin America. Due to its strategic location at a crossing of international airways, American and British aviation companies are planning to increase their facilities, and also establish internal air services during the postwar period. The republic has good telephone and cable service with all parts of the world.

Foreign Trade.—Exports in 1944 were valued at $60,269,328, as compared with the 1943 figure of $36,205,057. Imports were valued at $18,524,575. As in 1943, textiles comprised an important share, the largest single item in that category being jute and other types of bags valued at $2,808,903, with plain cotton fabrics in second place valued at $610,270. The main exports in order of their importance were raw sugar, cocoa, molasses, coffee, and yucca starch. Britain was the best customer taking over $37,500,000 worth of 1944 exports, with the United States in second place taking over $13,000,000.

Finances.—Fiscal receipts for 1944 amounted to $22,500,000, compared with the 1943 revenues of $17,400,000. When the external debt was reorganized in 1943 it amounted to $16,292,000. By January 1945 this had been reduced to less than $12,000,000. The 1945 budget voted by Congress in December 1944, amounting to $21,418,133, was the largest in the nation's history. On Jan. 20, 1945, a new tax of 3 per cent on imports went into effect, the additional revenues being earmarked for public works and social assistance. Sales taxes on alcoholic beverages and cigarettes were imposed at the same time.

Labor and Living Standards.—Government efforts to make good the lack of skilled labor through courses for textile and chemical workers are being combined with attempts to improve living standards, through laws providing for minimum salaries and paid vacations for workers, government housing, free lunches for school children, and adult education in hygiene, cooking, home management, and the cultivation of gardens.

In August 1944 the government announced the opening in various parts of the republic of 14 "economical diningrooms," serving about 3,600 meals a day at a cost of 10 cents a meal. A register of unemployed persons was also set up under government auspices, for use in placing employees, and the minimum salary laws were extended to include additional groups of garment and food workers.

On April 7, 1945, President Trujillo announced among other projects, creation of an agricultural loan bank, and construction of low-cost housing for workers and public employees earning less than $100 per month. Underprivileged residents of the capital receive free milk, to the extent of 2,000 bottles daily, distributed by the municipal government.

DONATIONS AND BEQUESTS. Following is a list of the more important donations and bequests made during 1945:

The late Mrs. Gertrude Vanderbilt Whitney, socially prominent sculptress, widow of Harry Payne Whitney, bequeaths $7,681,077 for charitable and public purposes.

New Jersey College of Agriculture, Rutgers University: gifts and pledges totaling more than $20,000 toward fund for basic research in entomology, donated by industries and individuals in honor of Dr. Thomas J. Headlee, secretary emeritus, New Jersey Mosquito Extermination Association.

Building Fund of New Rochelle (N.Y.) Hospital: gift of $51,500 from two Schaefer brothers, owners of F. & M. Schaefer Brewing Company.

Columbia University: cash gifts aggregating $75,780 from Fred L. Lavenburgh Foundation and others.

Princeton University: legacy estimated at nearly $4,000,000 from estate of Edgar Palmer, New Jersey Zinc Company official, and charter trustee of university.

Columbia University: grant of $60,000 from W. K. Kellogg Foundation, Battle Creek, Mich., to be used in establishment of training course for hospital administrators.

Alfred P. Sloan, Jr., chairman, General Motors Corporation and sponsor of Alfred P. Sloan Foundation, sponsors $4,000,000 grant for Sloan-Kettering Institute for Cancer Research at Memorial Cancer Center, New York City.

American Society for Prevention of Cruelty of Animals: bequest of $250,000 under will of late Miss Edith Grennell Bowdoin.

New York National War Fund: from Climax Molybdenum Company, Inc., gift of $18,100 and other gifts totaling $25,250.

DONNAY (Charles) Maurice, French writer and playwright: b. Paris, France, Oct. 12, 1859; d. there, March 31, 1945. Educated at the Lycée of Vanves, the Lycée Louis-le-Grand, and the Ecole Centrale des Arts et Manufactures, Donnay made his reputation as a dramatic author in Montmartre during the 1890's and continued to produce both books and plays until the time of the First World War. He remained a figure in French letters for many years, largely by reason of his position in the French Academy, to which he was elected in 1907. He was one of a group of French men of letters who went to the United States in 1922 to take part in the Molière tercentenary. Among his plays are *Dialogues de Courtisanes* (1892), *Amants* (1895), *Education de Prince* (1900), and *L'Assemblée des Femmes* (1930).

DOUGLAS, Lord Alfred (Bruce), English poet and author: b. Oct. 22, 1870; d. Lancing, Sussex, England, March 20, 1945. Lord Alfred Douglas is probably best known to the English and American public as the defense witness for his friend, Oscar Wilde, in the suits and countersuits between Wilde and Lord Alfred's father, the eighth Marquess of Queensberry, which eventually resulted in Wilde serving from 1895 to 1897 at hard labor for violation of the Criminal Law Amendment Act. He was educated at Winchester and at Magdalen College, Oxford, which he left without being graduated. He was the author of several biographies, editor of the *Academy* (1907–1910), and founder and editor of *Plain English and Plain Speech.* Among his publications are *The City of the Soul* (1899); *Sonnets* (1909); *Collected Poems* (1919); *In Excelsis* (1924); *Complete Poems* (1928); *Autobiography* (1929); *The True History of Shakespeare's Sonnets* (1933); *Sonnets and Lyrics* (1935); and *Oscar Wilde: A Summing Up* (1940). He translated Wilde's play, *Salome,* written in French, into English in 1894.

DRAMA. See Dance; Motion Pictures; Theater.

DREISER, Theodore Herman Albert, American author: b. Terre Haute, Ind., Aug. 27, 1871; d. Hollywood, Calif., Dec. 28, 1945. Dreiser was a pioneer figure in the effort to introduce a serious and honest realism into American literature, to record all aspects of human experience without moral or ethical bias, after the manner of the French naturalists. Although his style was clumsy and his sense of structure weak, the wealth of detail and observation of fact and his penetrating understanding of the tragic struggle for conquest and survival in modern industrial society gave his work a monumental strength and profound social significance.

Born of a poor and intensely religious family of German origin, Dreiser attended Catholic schools in Terre Haute, Sullivan, and Evansville, and public schools in Warsaw, Indiana. Through the financial assistance of a former teacher, he was able to attend Indiana University, but after one year there he went to Chicago, where he worked in a real estate office, later became a collector for a wholesale furniture company, and in 1891 began reporting for the Chicago *Globe.* He was dramatic editor and traveling correspondent of the St. Louis *Globe-Democrat* (1892–93) and traveling correspondent of the St. Louis *Republic* (1893–94). In 1894 he went to New York and after working for a short time on the *World* and as a manual laborer for the New York Central Railroad, he became editor of the magazine, *Every Month,* in 1895. He subsequently did free lance work for various magazines, including *Harper's, McClure's, Century, Cosmopolitan,* and *Munsey's.* Through the recommendation of Frank Norris, then a publisher's reader, Dreiser's first novel, *Sister Carrie,* was accepted for publication in 1900; but after selling about 500 copies, the remainder of the issue was withheld from circulation by the publisher. When the public noted that the heroine was not punished for her sins or reformed, a great outcry arose branding Dreiser as a menace to American morality. This was the beginning of Dreiser's long struggle for the right of a serious novelist to present life as he sees it; at first, he fought alone through years of bitterness, scorn, and derision, but in later years his work enjoyed the enthusiatic support of such critics as H. L. Mencken. Dreiser served as editor of *Smith's Magazine* (1905–06); managing editor of *Broadway Magazine* (1906–07); editor in chief of Butterick Publications (1907–10); and with the *Bohemian Magazine* in 1910. Dreiser's principal commercial and popular success was *An American Tragedy* (1925), a powerful study of the influence of heredity and environment on a young man executed for the murder of his pregnant and unwanted sweetheart. Based on an actual murder trial, this novel was later successfully dramatized and filmed. In recent years Dreiser had done little writing, but he was active in Left

wing circles. He was accepted as a member of the Communist Party in July 1945. Dreiser's works include: novels, *Jennie Gerhardt* (1911), *The Financier* (1912), *The Titan* (1914), *The Genius* (1915), *The Bulwark* (1916), *The Stoic;* short stories, *Free* (1918), *Chains* (1927), and *A Gallery of Women* (1929); drama, *Plays of the Natural and the Supernatural* (1916), and *The Hand of the Potter* (1918); poetry, *Moods* (1926), *The Aspirant* (1929), and *Epitaph* (1930); autobiography, *A Book About Myself* (1922), and *Dawn* (1931); essays and travel books, *A Traveler at Forty* (1913), *A Hoosier Holiday* (1916), *Twelve Men* (1919), *Hey Rub-a-Dub-Dub* (1920), *The Color of a Great City* (1923), *Dreiser Looks at Russia* (1928), *My City* (1929), *Tragic America* (1931), and *America Is Worth Saving* (1941).

DRUGS, New. See CHEMISTRY; MEDICINE; MELLON INSTITUTE; TROPICAL DISEASES.

DUBIN, Al, American writer of popular songs: b. Zurich, Switzerland, 1894; d. New York, N.Y., Feb. 11, 1945. One of the most successful lyricists of the last 20 years, Mr. Dubin wrote the words of *Among My Souvenirs, Dancing with Tears in My Eyes, Shuffle Off to Buffalo, Tip-Toe Through the Tulips* and many others. He went to Hollywood in 1930, and wrote an average of 60 songs a year, principally for Warner Brothers. Among the pictures for which he provided the lyrics are *Forty-second Street, Show of Shows, Roman Scandals,* and four of the *Gold Diggers* series. In 1935, Mr. Dubin and his composer-partner, Harry Warren, received the Hollywood Academy award for the song *Lullaby of Broadway.*

DUTCH BORNEO. See BORNEO.

DUTCH EAST INDIES. See NETHERLANDS INDIES.

DUTCH GUIANA. See SURINAM.

E

EAKER, Ira Clarence, United States Army Air Force officer: b. Field Creek, Texas, April 13, 1896. To Lieutenant General Eaker belongs much of the credit for building the formidable United States Eighth Air Force in Great Britain, which joined with the British Royal Air Force to carry the war to Axis Europe. With his bomber commander, Maj. Gen. Frederick L. Anderson, and British Air Chief Marshal Sir Arthur Tedder, General Eaker wielded one of the largest and most flexible combinations of air striking power in existence. In December 1943, with the realignment of Allied high commands in preparation for invasion of the Continent, he was transferred to the Mediterranean theater to direct operations of the Allied Air Force[1] there, under the over-all command of Gen. Sir Henry Maitland Wilson. In early June 1944, he participated in the first shuttle-bombing raid on the Balkans by Russian-based Flying Fortresses and bombers of the United States Fifteenth Air Force. On April 24, 1945, General Eaker succeeded Lieut. Gen. Barney M. Giles as deputy commander of Army Air Forces and chief of the Air Staff, Washington.

ECONOMIC REVIEW. See FINANCIAL AND ECONOMIC REVIEW.

ECUADOR. A republic of South America, bounded on the north by Colombia, east and south by Peru, and west by the Pacific Ocean. The area, according to the settlement in February 1945 of the longstanding boundary dispute with Peru is variously estimated from 96,800 to 125,000 square miles, including the 13 Galápagos Islands (officially called Archipiélago de Colón, i.e., Columbus Archipelago) lying 600 miles from the Ecuadorean coast and having an area of 3,028 square miles. The population (est. Jan. 1, 1944) is 3,171,367. Formerly the *Reino de Quito,* it was conquered by the Incas of Peru in the 15th century; later the territory was included in the Spanish vice-royalty of Peru until the republic was proclaimed in 1822, after the Battle of Pichincha. A new constitution was formulated in the fall of 1944 under the administration of President Jose Maria Velasco Ibarra, who assumed office on May 31. The country is divided into 17 provinces and one territory. The capital is Quito (pop. 165,924 est. Jan. 1, 1944). Other towns are Guayaquil (172,948), Cuenca (48,300), Ambato (21,692), Riobamba (27,459), Loja (20,776), Latacunga (20,357), and Azogues (15,068).

Religion and Education.—Freedom of worship is granted to all denominations. The Catholic Church has an archbishop and six suffragan bishops. Foreign clergymen of whatever faith cannot enter the country without government permission, though such permission has been frequently granted in recent years.

Education is free, secular and compulsory in the primary schools (textbooks and scholastic materials supplied by the government or municipal authorities). There are also free continuation schools for vocational training of pupils who do not continue their studies in the secondary schools. Where Indian populations are dominant, Quechua or other native languages supplement the Spanish.

There are 47 day nurseries, 3,074 primary schools, 73 secondary schools, 70 professional schools and 4 universities, a total of 3,268 educational institutions. The total number of pupils and students is 274,196, including 2,355 men and 229 women attending the universities located at Quito, Guayaquil, Cuenca and Loja. A school for nurses at Quito gives free instruction to 30 selected pupils. The government includes in its annual budget a fund for scholarships for the higher education of sons of workmen, artisans and farmers.

Agriculture and Industry.—There are two agricultural zones, the lower river valleys where tropical products abound, and the hill country,

[1] On Feb. 3, 1945, General Eaker released the following report on results of Mediterranean Allied Air Force operations for 1944: 390,258 tons of bombs dropped on enemy targets in 604,383 sorties, with a loss of 5,306 planes; 4,203 enemy planes downed, 1,121 probables, and 1,475 damaged; 486 small ships sunk. On March 25, he announced that his air force had lost more than 20,570 men in 1944, 100 per cent of its strength. This involved the loss of about 2,050 heavy bombers.

adapted to grazing, dairying and the production of cereals, fruits, and vegetables of more temperate regions. The principal products are cocoa, ivory, nuts, rubber, coffee, tobacco, mangrove bark, hat straw and, in smaller quantities, sugar, rice, cotton, lentils, Indian corn, wheat, barley, potatoes, and a variety of vegetables. The cocoa crop in 1943 amounted to 393,899 quintals of 101.4 pounds each, representing a gain of 33.6 per cent over 1942; but the 1944 yield was only 294,514 quintals. However, the first six months of 1945, totaling 231,087 quintals, 72 per cent above the amount in the relative 1944 period, indicate the probability of another bumper crop of perhaps 350,000 quintals. The sugar crop in 1944 was 26,000 short tons, as compared with 1943 production of 31,000 tons. The entire 1944 crop was purchased by the government. According to a September 1945 report, the coffee crop for the year will probably not exceed 250,000 quintals, as compared with 350,000 in 1944. The cotton crop of 1943–44 amounted to 7,350 bales of 500 pounds each. In June 1945 the 1944–45 crop was estimated at not more than 5,000 bales. Normally, Ecuador has to import cotton for its textile industries; domestic consumption will probably require importation of 6,000 or 7,000 bales from Peru and Paraguay in the latter part of 1945. The 1943 domestic crop of tobacco was poor, and imports from the United States in 1943 were 300 per cent over 1942. A substantial reduction in tobacco acreage in 1944 induced the government in 1945 to pass laws favoring increased production. After the harvest of the 1945 "winter" rice crop amounting to 1,100,000 quintals, it was estimated that the second crop would amount to only about 300,000 quintals, making a total 1945 production of about 20 per cent less than in 1944. Of this production about 350,000 quintals are for shipment to Cuba, pursuant to terms of a rice-sugar exchange agreement. The United States government arranged to purchase the entire 1945 kapok production which in the first quarter amounted to 81,691 kilograms, treble the amount in the corresponding period of 1944. There are large forest areas, including more than 90,000 square miles of virgin timber. Ecuador is the world's chief source of balsa wood. The 1945 production, according to June estimates, may reach 15,000,000 feet, less than half the 1943 record year output of 37,000,000 feet. Mineral products include gold, silver, quicksilver, lead, iron, copper, and some emeralds and rubies. Gold production in the first quarter of 1945 amounted to 10,236,013 ounces, the 1944 total production having been 51,601,441 ounces. All salt mined must be sold to the government, and there are large sulphur deposits. In recent years oilfields have been developed. Petroleum production in 1944 was 121,471,900 gallons valued at 42,515,100 sucres; in the first quarter of 1945, production was 27,239,300 gallons. Nearly all manufactured products are for local consumption, the outstanding exception being the Panama (or "Jipijapa") hat, made by hand of Toquilla straw and rarely worn by the Ecuadorean.

Finances.—The external debt of Ecuador on June 30, 1945, amounted to $30,863,000; consolidated internal public debt, 158,343,348 sucres. (At par one sucre equals 20 cents in United States currency, but since 1939 has equaled six or seven cents, the value during the first quarter of 1945 being slightly more than seven cents.) The budget for 1945 of 335,150,000 sucres, approved by the Constitutional Congress in March, was reduced in May to 246,685,000. Of this sum 57,000,000 sucres is earmarked for public works, and 42,000,000 for the Ministry of Education.

Communications.—There are 1,591 miles of main highways, 1,121 of branch roads, and 2,227 miles of trails. Ten railways in operation have a total length of 906 miles. There are 5,444 miles of navigable rivers, but only about 400 are in general commercial use. The most important river systems for transportation are the Guayas in the south and the Esmeraldas in the north. During the rainy season there is river communication in the principal agricultural districts. There are 10 seaports, 446 post offices, 211 telegraph offices with 4,083 miles of telegraph wires, and 95 telephone offices with 7,753 subscribers in the capital. A presidential decree of April 1945 authorized the government to contract for the establishment of an internal telecommunications system. Pan American-Grace Airways operates a domestic air service, and international air routes connecting Ecuador with the Canal Zone, Peru, and Chile are maintained on a schedule of four trips per week. On July 20, 1945 a 10-year contract was made by the government with an American corporation, the West Indies Flying Service, to establish passenger, mail and freight air transportation between numerous cities in Ecuador. The drastic reduction of 75 per cent in import duties on automobiles, busses, trucks, tires and automobile parts, made by an executive decree of June 9, 1945, promises to relieve pressing transportation problems.

Foreign Trade.—The value and quantity of exports of Ecuadorean products continued to far outweigh the value and quantity of imports during 1944, thus piling up unprecedented trade balances in the foreign markets. Laws controlling imports were drastically reformed to permit a more elastic manipulation of foreign trade. Rice, cacao, rubber, petroleum, fruit, balsa wood, and Panama hats were the major export items. Exports in 1944 totaled 466,630,000 sucres and imports 331,154,000 sucres. Since 1938, with the exception of the year 1940 when the balance of trade went against Ecuador to the extent of 5,903,000 sucres, the country has had continual favorable trade balances.

A table of commercial balances for the quinquennial 1940–44, issued by the government Aug. 31, 1945, and set forth below, shows somewhat different figures due to the fact that the export figures do not include the values of crude petroleum, copper in bars, and gold, copper and lead concentrates. This accounts for the apparent deficit in 1941 when there was actually a surplus.

(in thousands of sucres)

Year	Export	Import	Bal. { surplus+ deficit −
1940	101,624.7	173,753.3	−72,128.6
1941	139,160.7	149,499.2	−10,338.5
1942	228,565.7	199,715.1	+28,850.6
1943	302,922.8	217,983.0	+84,939.8
1944	383,400.2	331,156.0	+52,244.2

Principal Events.—The success of Brazilian mediators in settling the boundary dispute which had envenomed relations between Ecuador and Peru for over a century was indicated by a cordial exchange of messages between the presidents of the two countries in July 1945, five months after an agreement had been reached at Rio de Janeiro which, in the main, favored Peru's side of the case. A popular uprising in Ecuador, which had been staged in the spring of 1944 by the Democratic Alliance, a coalition including labor and liberal groups, resulted in the resignation of President Carlos Arróyo del Río, and

the installation of the exiled Dr. José Maria Velasco Ibarra as acting president on May 31. Within the next week Brazil, Peru, Paraguay and the United States recognized the new regime. Elections were postponed until July 23 when 90,000 voters gave the Democratic Alliance a clear majority in the constitutional assembly appointed to formulate a new constitution (promulgated in March 1945). Dr. Ibarra was proclaimed president by popular acclamation.

A good economist and vigorous administrator, Dr. Ibarra immediately applied himself to the solution of his country's serious economic, political and social problems. The year 1945 saw the initiation of several major public construction projects. Among these were a modern water-purification system for Quito, estimated to cost $1,000,000; Guayaquil's expanded water supply system, drawing additional water from the Daule River 12 miles above the city; erection in Guayaquil of municipally sponsored low-cost housing for workers; development of irrigation systems in the provinces of Chimborazo, Manabi, Guayas, Pichincha and Imbabura. The end of the Second World War saw a notable increase of building activities in Ecuadorean cities. Many municipalities began construction of electric plants to furnish light and power. By legislative decree, effective from June 12, all construction materials, when destined for theaters and amusement centers, were exempted from customs and consular duties. Under the Inter-American Co-operative Health Service hospital construction in 1944 and 1945 made rapid strides. The earthquake damaged hospitals in Manabi province were repaired and remodeled, and a children's pavilion was added to Guayaquil's maternity hospital.

EDEN, Robert Anthony, British statesman: b. June 12, 1897. Britain's former secretary of state for foreign affairs and head of her delegation to the San Francisco Conference (April 1945), Mr. Eden is a veteran of 22 years in British politics. He was elected member of Parliament for Warwick and Leamington in 1923; in 1934, took his first Cabinet post, that of Lord Privy Seal; and in 1935, became minister without portfolio for League of Nations Affairs. In December of the latter year, he was appointed foreign secretary, a position he resigned in February 1938, in protest against Prime Minister Neville Chamberlain's appeasement policy toward Germany and Italy. This was not the first time Mr. Eden had defied the head of his government. While serving under Prime Minister Stanley Baldwin, he strongly opposed the deal with Mussolini, proposed in the Hoare-Laval scheme for settlement of the Abyssinian question, and according to James Weston of *The Christian Science Monitor,* "was largely responsible for forcing Sir Samuel Hoare out of the government." Mr. Eden returned to the Cabinet in 1939 as secretary of state for dominion affairs, and in May 1940, became secretary of state for war under Prime Minister Churchill. He was again appointed foreign secretary in December 1940, and in November 1942, assumed additional duties as leader of the House of Commons, succeeding Sir Stafford Cripps. In 1943, he represented Britain at the Moscow Conference of Foreign Ministers and accompanied Mr. Churchill to the Teheran meetings with Premier Stalin and President Roosevelt, and the Cairo conferences with Generalissimo Chiang Kai-shek of China and Turkey's President Ismet Inönü. Three times in 1944 (January, July, October), he met with Polish Premier Stanislaw Mikolajczyk in an effort to speed settlement of the knotty Russo-Polish boundary controversy. He had occasion in February 1944 to restate the object of Britain's foreign policy when he told Commons that Great Britain sought "to maintain peace and protect the rights of small nations in co-operation with nations of the British Commonwealth, the United States, and Russia," at the same time reserving the right of intervention in the settlement of political affairs in any part of Europe. While Mr. Eden is an able and fearless advocate of world co-operation, he is first a staunch nationalist, and like Mr. Churchill, has made it plain that he will not "officiate at the liquidation of the British Empire." In September and October 1944, he attended the Quebec and Moscow conferences, and in December, accompanied Mr. Churchill to Athens to attempt to put an end to the civil war raging in that city. He made a second visit to Athens on Feb. 14, 1945, on his way back to London after the meeting of the Big Three at Yalta in the Crimea. The following April, he headed the British delegation to the United Nations Conference convened in San Francisco. With Prime Minister Churchill, he attended the Potsdam Conference, convened on July 17, 1945. Mr. Eden went out of office as foreign secretary with the overwhelming defeat by the Labour Party of the Conservative Party in the July parliamentary election, the results of which were announced July 26.

Mr. Eden was educated at Eton and Christ Church College, Oxford. In the First World War, he served with the King's Royal Rifle Corps. He has published two books, *Places in the Sun* and *Foreign Affairs* (1939).

EDUCATION, Review of. Public School Enrolments.—The session of 1944–45 marked a new low in public school enrolments since the outbreak of the war, according to estimates prepared by the Statistical Division of the U. S. Office of Education. In 1942–43 there were 24,155,146 pupils enrolled in our public schools (elementary, 18,033,080; high school, 6,122,066). The next session the enrolment decreased 3.7 per cent to 23,256,000 (elementary, 17,766,000; high school, 5,490,000). Actually, the percentage decrease in high school enrolment (10.3) was nearly seven times as great as that in the elementary school (1.5). A further decrease, but relatively slight as compared with that of the previous year, occurred between 1943–44 and 1944–45. The total public school enrolment dropped to 23,197,300, of whom 17,740,500 were in elementary schools and 5,456,800 in high schools. Comparative statistics for the three sessions, with percentage decreases for the two-year period, are as follows:

PUBLIC SCHOOL ENROLMENTS, 1942–45

	1942–43	1943–44	1944–45	Per cent decrease Two-year period
Elementary	18,033,080	17,766,000	17,740,500	1.5
High School	6,122,066	5,490,000	5,456,800	10.9
Total	24,155,146	23,256,000	23,197,300	4.0

The percentage decrease in the number of boys enrolled in high school was twice that of the girls, as is to be expected when draft calls and employment opportunities are considered. The largest losses in enrolment were in the number of boys in high schools in cities of 100,000 population and over. The decrease in the number of boys enrolled in the last two years of high school was also striking, averaging 20 per cent in the two-year period.

School enrolments, public and private, for the session 1944–45 are estimated as follows by the Office of Education:

	Public	Private	Total
Elementary	17,740,500	2,088,900	19,829,400
Secondary	5,456,800	458,700	5,915,500
Total	23,197,300	2,547,600	25,744,900

Back-to-School Drive.—The decrease in high school enrolment during the war has caused serious concern. From an all-time peak of 7,250,000 in 1940–41, enrolment dropped 300,000 in 1941–42; 300,000 in 1942–43; and 600,000 in 1943–44. Only a negligible drop occurred in 1944–45, thanks largely to the 1944 National Back-to-School Drive. Nevertheless, at the close of the 1944–45 session, enrolment was more than a million below its prewar peak. A new Back-to-School Drive, sponsored jointly by the Children's Bureau of the U.S. Department of Labor and by the U.S. Office of Education, was launched in August 1945. An increase of 250,000 in high school enrolment was set as the goal in an effort to enroll again teen-age boys and girls who have not completed their high school education. The drive was enthusiastically endorsed by representatives of education, labor, industry, and government. "Fact Sheets" and "Action Ideas" were prepared for the use of educational, civic, and community agencies.

While some of the shrinkage in high school enrolment has been due to a decrease in the number of boys and girls of high school age, by far the greatest loss is attributable to the increase in youth employment. In 1940 approximately 900,000 boys and girls, 14 through 17 years of age, were at work. In the spring of 1945 nearly 3,000,000 were employed. Half of these had dropped out of school entirely, while the others held part-time jobs. It is expected that many of the 1,500,000 youths who have left school for full-time jobs will be laid off as cut backs occur. With the canceling of war contracts and the release of men from the services, adult workers can take over many of the jobs now done by boys and girls of high school age. A special effort is being made to get these young people back in school.

Teacher Shortage.—Again in 1945–46 the schools of America faced a severe shortage of teachers. Although the situation is most serious in the South and in the rural areas, every section of the country is seriously affected, according to a survey conducted by the New York *Times* (June 24, 1945). During the session of 1944–45 approximately 80,000 emergency licenses to teach were issued, an increase of 20,000 over the previous year. Teacher turnover has continued at an unprecedented rate. During the past two years 300,000 teachers, or one out of every three, have changed their positions. Some 150,000 have left the profession to take jobs in industry or enter various branches of military service. There are today 60,000 fewer teachers than in 1942.

Such a situation has had far-reaching effects upon the nation's schools. In rural communities it has been necessary to close some of the smaller schools. In the larger schools, courses or whole departments, especially in the specialized fields, have been discontinued temporarily for lack of teachers. The shortages are most acute in physical education both for boys and girls, industrial arts, home economics, commerce, mathematics, and science. Most of these areas require a specialized college course for successful teaching; it has been very difficult to staff them with "emergency" teachers. The *Times* survey gives graphic evidence of the effect of the teacher shortage upon the schools in various states. Arkansas issued 8,788 emergency certificates for the 1944–45 session. Although Mississippi issued 1,358 emergency certificates, there were still 600 unfilled teaching positions. Twenty-nine high schools offered no science of any kind for lack of teachers.

Arkansas officials believe it will be years before the shortage of from 5,000 to 6,000 qualified teachers is remedied, especially since the number of graduates from the teachers' colleges has declined 80 per cent since the beginning of the war. The average preparation of teachers in Arkansas has dropped to 1.9 college years.

The *Times* survey indicates that the shortage is nationwide. Illinois issued 3,451 emergency certificates in 1944–45; it issued 2,356 the year before. One thousand teachers are still needed. Ohio issued 5,790 emergency certificates last session, or 14 per cent of the total number of teachers employed. There was still a shortage of 750 teachers. Many departments were dropped, such as music, physical education, industrial arts, and business education. Elementary classrooms were seriously overcrowded. California has granted 9,000 temporary licenses, or one fifth of the total teaching staff. Iowa issued 5,500 emergency certificates last session.

Emergency Certificates.—The emergency certificate is a temporary license to teach issued to a person who does not meet the usual qualifications for certification. Issued rather rarely before the war, usually to teachers of applied subjects who did not meet the collegiate requirements, the temporary certificate is now held by at least 80,000 members of the teaching staff. All of the states now issue this certificate. The average number issued per state during 1943–44 was 1,446; in 1944–45, it had risen to 1,778 per state, with some states having as many as 9,000 emergency teachers.

Most of the states issued temporary certificates on the recommendation of local school superintendents who state that the person for whom temporary certification is requested is the best qualified candidate available for the position. The minimum requirements for emergency certificates vary greatly among the states. In 9 out of the 40 states for which data are available, no minimum requirements are specified, reliance being placed upon the recommendation of the local superintendent. Ten states require high school graduation only. Twenty-one states require some college work, varying from less than a half year to four years. In a number of states the requirements vary with different types of emergency certificates. So great are the variations in certificate requirements throughout the country that holders of emergency certificates in some states have more preparation on the average than holders of regular certificates in certain other states. However, in the majority of cases the requirements for temporary certification are from one

to two years below the minimum requirements for regular teaching certificates.

According to Dr. Benjamin W. Frazier, senior specialist in teacher education, U.S. Office of Education: "The qualifications of emergency teachers are uncertain not only in amount of preparation, but also in personality, experience, maturity, and other qualifications. Included among emergency teachers are teen-age high school students, retired teachers with a lifetime of experience, married women ex-teachers, college graduates and former students with no professional training or experience, tradesmen, and a variety of other persons."

Steps have been taken as safeguards against the postwar retention of under-qualified emergency teachers. In more than two thirds of the states the emergency permits are valid only for one year or for the school session for which issued. In many states they are not renewable, new permits being issued instead. In other states they are renewed only after the holder has taken some in-service preparation. Most states plan to discontinue the emergency certificate as soon as qualified teachers become available.

Meanwhile, strenuous efforts have been made to improve the effectiveness of emergency teachers through in-service training. Extension classes, workshops, off-campus study centers, planning conferences, supervisory services, intervisitation of teachers, summer school courses and workshops, and correspondence courses are reported in wide-spread use.

Certification of Teachers.—Although there has been a decided lowering of standards through the issuance of war emergency permits to teach, little if any permanent change in state certification regulations has occurred. Fourteen states and the District of Columbia now require four years of college work as a minimum for the lowest grade *regular* certificate issued to elementary school teachers. Five states and the District of Columbia require a minimum of five years of college work for beginning high school teachers of academic subjects.

Twenty-five of the states still issue regular teaching certificates for the elementary grades on two years or less of college work. In fact, eleven of these states issue such certificates on the basis of one year of college work. However, in several cases holders of these certificates may teach only in rural elementary schools. Five states still issue certificates upon a basis of graduation from high school or high school normal training courses, and seven upon examinations for which no scholastic prerequisites are specified. In spite of the progress made in raising certificate requirements, it is evident that there is still wide variation in standards among the states. From two to five years of college work may be required for a high school teacher's certificate, while the range for an elementary teacher's certificate varies from high school graduation to four years of college, plus, in the District of Columbia, an examination.

The raising of certification requirements is dependent to a large degree upon the supply of teachers. Whether the continual progress made up to 1941 will be resumed in this postwar period is uncertain. Teachers colleges are not attracting as large numbers of students as formerly. Many now offer liberal arts courses as well, and smaller proportions of their graduates actually go into teaching. There seems to be a definite need for making teaching more attractive as a profession. Most authorities insist that adequate salaries for teachers is the only real answer to this problem. However, it seems difficult to convince the public at large, and especially its tax-levying bodies, that an investment in public education is truly an investment in the citizens of this country. As such, the dividends that accrue are not only statistical gains in school grade completed, literacy, etc., but definite advancement in earning power, purchasing power, economic sufficiency, intelligent citizenship, and practical democracy.

Vocational Education: Enrolments.—Enrolments in federally-aided vocational classes decreased 280,607 between 1942–43 and 1943–44, due largely to conditions arising from the war. According to the Vocational Division of the U.S. Office of Education, the decrease in agricultural classes is attributable to a reduction of the number of departments in rural schools, the induction into service of farm youth, and the time and effort teachers have given to the Food Production War Training Program. A somewhat similar situation also accounts for the loss in enrolment in trade and industrial classes. The decrease in home economics reflects the general decrease in high school enrolment. Enrolments in the federally-aided vocational classes for 1943–44 were as follows: Agriculture, 469,959; distributive education, 181,509; home economics, 806,515; trade and industrial education, 543,153; total, 2,001,136. The total enrolment in 1942–43 was 2,281,743.

Vocational Education: War Training Programs.—On June 30, 1945 the federally-sponsored war training program was officially terminated. Established as an emergency measure in the fall of 1940, this huge vocational project under the general direction of the U.S. Office of Education resulted in the training of over 12,000,000 men and women for war jobs at a cost of some $500,000,000. Described by the New York *Times* as "one of the most ambitious educational projects ever undertaken in this country," the training program operated on three levels: on the college and university level, 1,500,000 men and women received specialized training in 238 institutions; on the secondary level, 8,000,000 in 2,500 schools; in the food production program, 2,500,000 in 15,000 farm communities.

The college program was known as the Engineering, Science, and Management War Training Program. Established originally in October 1940 to make available "short intensive courses of college grade designed to meet the shortage of engineers in fields essential to the national defense," the scope was later widened to include the fields of chemistry, physics, and production supervision. All courses offered under this program were of college grade. High school graduation or its equivalent in training and experience were prerequisite for admission.

Direct participation in the program was limited to institutions granting degrees in one or more of the four fields designated for training. A total of 238 institutions participated, offering courses not only on their own campuses, but wherever in the region they served a need for college level training was indicated. Instruction was carried on in over 1,000 cities, frequently in the plants being served, at any hour of the day or night that was most convenient for the trainees.

Tuition free, the 42,163 courses that were offered during the five years of the program enrolled 1,791,206 trainees, distributed among the four fields as follows: engineering, 1,332,570;

production supervision, 386,011; chemistry, 39,392; and physics, 33,233. About 6 per cent of the trainees were enrolled in full-time courses of from 6 to 15 weeks' duration, in preparation for employment in war industries. The remaining 94 per cent were largely persons already employees in war industries, who were preparing for more responsible positions or seeking improved skill for their present position.

According to the Office of Education, much evidence is at hand, in the form of statements from industrial executives, indicating that by providing specialized training vitally needed in war industry this program greatly expedited war production. "It seems likely that without it the record made by American industry during the war would have been impossible," states *Education for Victory* (June 20, 1945).

On the high school level, the Vocational Training Program for War Production Workers reached 2,600 training centers. While under the U.S. Office of Education, the responsibility for the actual operation of the program was delegated to the various local boards within the states. Each state appointed or designated a state director of VTWPW who was immediately in charge of the program. Every type of course needed for industry was offered. Courses lasted from six to ten weeks, depending upon the skill to be acquired. The greatest number of trainees were enrolled in automotive services (167,661), aviation (1,797,830), electrical (117,645), machine shop (1,214,235), radio (251,613), shipbuilding (1,389,609), and welding (514,149) classes. Students ranged from high school girls who took up welding to experienced ship builders preparing themselves for upgrading.

The courses were provided without charge of any kind. The vocational departments of some 500 high schools operated on a 24-hour basis. Emphasis was placed upon jobs that could be learned in a comparatively short time, for the urgency of war production needs had to be met. Trainees were placed on the job as soon as they were thought to be reasonably efficient. Between July 1, 1940 and March 31, 1945, the number of persons actually trained totaled 7,369,017, with 2,662,558 in pre-employment courses and 4,706,459 in supplementary courses. Women comprised a sizable group of the total trained, numbering in all 1,474,479. The 554,422 women receiving pre-employment training and the 920,057 receiving supplementary training constituted one fifth of the total enrolled in each of these categories.

A third phase of the program was an attempt to help farmers improve their food production. In 2,600 counties nearly 200,000 courses approved by the Office of Education were conducted by 50,000 instructors, a majority of whom were laymen, in a nation-wide program to better production records. Classes were held in school houses, in factories, or on the farms. The repair of farm machinery, new methods of planting, cooperative soil improvement, and other matters vital to production were taught.

The magnitude of the task that has been accomplished in training war workers is not generally realized. "Schools and colleges have reason to be proud of the task they performed," states the New York *Times* (June 17, 1945). "Almost overnight, they changed from a quiet, peacetime academic program to an accelerated, rapid-pace war schedule. They gave gladly of their services. In time, perhaps, the herculean tasks they performed will be more commonly recognized."

War Services in the Schools.—Breaking all previous records, the purchases and sales of War Savings Stamps and Bonds by pupils and teachers during the session of 1944–45 totaled $715,000,000. Since Pearl Harbor the school program has resulted in an investment of $1,767,000,000 in War Bonds, the Treasury department reports. "I congratulate the boys and girls and their teachers for this magnificent contribution to the fight for victory and a just peace," said President Harry S. Truman upon accepting at the White House on July 5, 1945, a plaque, symbolic of the "purchase" of nearly 20,000 pieces of military equipment through sponsorship campaigns conducted by the schools. With the end of the war schools have been asked to continue their war savings programs throughout the session of 1945–46. Fall campaigns featured hospital equipment and medical supplies. Pupils have also played an active part in the various War Loan drives.

Army and Navy Postwar Educational Programs.—Profiting by the mistakes of 1917–18, army authorities have made elaborate plans for keeping the men occupied after the cessation of hostilities. A poll conducted in the fall of 1944 showed that 57 per cent of the officers and 66 per cent of the enlisted men favored study programs over mere recreation, such as athletics, tours, handicrafts, and dramatics. The basic unit in the educational program is the "command school" planned for a battalion or geographically separate unit of 1,000 men or less. Classes are organized within the unit with instructors drawn from the unit's own personnel. Course outlines based on standard texts were already available, but it was necessary to train thousands of teachers.

During June and July 1945, approximately a thousand men a week completed "teacher-training" courses of one week's duration at special schools in Paris and in England. By November the army planned to have available 22,000 unit education officers, 2,600 instruction officers, and several hundred counselors and other specialists. Each course is broken into blocks of 20 hours each, so that even if a unit is moved suddenly the men will be able to complete at least a segment of the work. Courses range in length from one block of 20 hours to as many as 320 hours. Theater syllabi list 171 courses in four basic fields: agriculture, mechanical and technical, business, and general education. Four million textbooks have already been shipped to Europe.

According to the New York *Times*[1], the Ninth Air Force has more than 50 schools going with 21,000 students. In one bombardment group, the normal complement of one airfield abroad, 1,000 soldiers are attending 83 classes in 30 subjects. One fighter group has 625 men studying. It is estimated by May 1946 there will be 2,200 unit schools with some 1,250,000 men enrolled.

For men interested in collegiate education the army has established three overseas universities, known as University Study Centers. The first of these opened in Shrivenham, England, in July 1945. Courses in agriculture, commerce, education, engineering, fine arts, journalism, science, and liberal arts are offered. Of eight weeks duration, the courses are patterned after those of the typical American university summer session. A similar University Study Center is in operation at Biarritz on the French Riviera in a series of requisitioned hotels and villas. A third center in the nature of a technological institute is

[1] Hill, Gladwin: "Greatest Education Project in History." July 29, 1945.

planned for Wharton, near Liverpool, where the buildings, equipment, and living accommodations of one of the Army Air Forces' largest service depots are now available. Each center will accommodate about 4,000 men. The faculties are composed of both army officers and civilian educators from the United States. Some 300 civilian instructors have been drawn on leave of absence from outstanding colleges and universities in this country.

In addition to the unit schools and the university centers the army program provides for placing about 20,000 men in three months' courses in civilian educational institutions such as Oxford, Cambridge, and the Sorbonne wherever arrangements can be made. One-month courses for 30,000 men in private industrial firms are also planned. Still a fourth type of educational opportunity to be offered is in the nature of specialized training in fields covered by normal army activities. In quartermaster depots and machine shops where specialized equipment is available a variety of vocational courses not offered in the unit schools will be taught. Courses of this kind will be available to 50,000 men.

The navy has a comprehensive program of academic, vocational, and orientation education and training under the direction of the Bureau of Naval Personnel. Since 1942 the Educational Services Program has been steadily expanded to reach a large percentage of naval personnel. Through a Civil Readjustment Program instituted in April 1944, the bureau has actively assisted every dischargee in making the optimum adjustment to civilian life. Unlike the army and the Marine Corps, the navy has relatively few personnel who are concerned only with combat. Most navy jobs are concerned primarily with operations and maintenance, which continue as long as the ships are afloat, regardless of the existence of a state of war. Even upon the cessation of hostilities, the regular duties of the men largely continue. Chief features of the navy educational program are: (1) Counseling and guidance; (2) classes in academic and vocational subjects; (3) correspondence courses through USAFI; (4) testing and accreditation to civilian schools; (5) hospital rehabilitation; and (6) work in redistribution centers. Education service officers are stationed at all naval activities of over 2,000 personnel.

Educational Plans of Veterans.—Interest is widespread in the extent to which veterans will take advantage of the educational provisions of the Servicemen's Readjustment Act of 1944, commonly known as the "GI Bill of Rights." While numerous samplings have been made, perhaps the most authoritative report yet to appear is a bulletin entitled *Data for State-wide Planning of Veterans' Education,* by Ernest V. Hollis, principal specialist in higher education, U. S. Office of Education (Bulletin 1945, No. 4). Based on data supplied by the War Department and other agencies, Dr. Hollis' survey shows that most veterans want new or better jobs when they return to civilian life, especially the younger men. According to the War Manpower Commission, less than one fourth of the men and women who have been separated from the armed forces have returned to their old jobs.

It is estimated that approximately a million (7 per cent) of the total number of men and women in the services expect to return to school or college for full-time work. Another 2½ million (14 per cent) are interested in part-time study. However, many factors influence the number who will actually enroll, chief among which are age, previous schooling, marriage, and business opportunities. When only men under 25 years of age, single, with the necessary previous education are considered, the number of prospective students is reduced at least one fifth. It is felt that a generous estimate of the number who will enroll for full-time collegiate education is 650,000 men.

In general, the more education a man has had before entering the service, the more interested he is in further schooling. According to reports compiled by the Veterans' Administration, four fifths of the men now receiving educational benefits under the GI Bill of Rights are studying in colleges, and one fifth are pursuing vocational courses of less than college grade. It is significant that only one fifth of the veterans enrolled in college are studying an arts and sciences program; four fifths of them are enrolled in professional and technical curricula.

College Enrolments.—According to Dr. Raymond Walters' annual survey[2] of college enrolments, full-time students in 679 approved higher institutions in 1944–45 totaled only 608,750; the inclusion of part-time students raises this total to 925,084, or nearly one third less than the number reported in the fall of 1939. Despite fairly large freshman classes of 16- and 17-year-olds, the wartime enrolment of men students has dropped from 50 per cent to as much as 94 per cent in some institutions as compared with 1939. A comparison of 1944 fall enrolments (593,271) with those reported by the same institutions in 1943 (817,759) reveals a loss of 224,488 full-time students. However, 363,000 of the full-time students reported in November 1943 were trainees in army and navy units. In the fall of 1944 the number of army trainees was less than one fifth of the number the previous year. Navy trainees decreased 11 per cent.

In December 1943, Dr. Walters reports, army trainees in approximately 350 colleges and universities reached a peak of 235,000 men on active duty and 2,900 reserve students. Of this number, 145,000 were enrolled in various divisions of the Army Specialized Training Program; 2,900 in the Enlisted Reserve Corps; 80,000 in the Army Air Force; and 10,000 in miscellaneous categories. By the fall of 1944 the number had dropped to 40,830 in the 138 institutions being utilized, plus 560 men receiving specialized AAF training. In December 1943, the navy had a total of 125,935 personnel enrolled in 130 higher institutions. (The maximum of 138,136 was reached in July 1943.) In the fall of 1944, the same 130 institutions enrolled 113,531 navy trainees, divided into 27,267 navy instruction, 47,090 college instruction, and 39,174 split instruction.

Enrolment of women students has reached new peaks. In the 671 institutions surveyed by Dr. Walters, 60.2 per cent of the students enrolled in 1944 were women. In the large universities, approximately 55 per cent of the students were women; in the 421 liberal arts colleges reporting, women constituted 74 per cent of the student body.

Freshmen enrolments in the fall of 1944 showed an encouraging increase. Approximately 60,000, 16- and 17-year-old young men entered college, an increase of 14.4 per cent over the civilian freshmen in 1943. The number of women entering the freshman year increased 17.9 per cent.

[2] Walters, Raymond: "Statistics of Attendance in American Universities and Colleges, 1944." *School and Society,* Dec. 23, 1944, pp. 402 ff.

Effect of War on Colleges.—Rather complete data on college enrolments, receipts, expenditures, etc., in wartime are available in a special report published by the Committee on Education, House of Representatives, under the title, *Effect of Certain War Activities Upon Colleges and Universities* (79th Congress, 1st Session, House Report No. 214; Government Printing Office). Francis J. Brown directed the study, assisted by an outstanding advisory committee and staff. Limitations of space preclude more than a few brief comments on this comprehensive report. Resident college enrolments of civilian students in 1944–45 are estimated to total only 53.8 per cent of the 1939–40 enrolments (See table). Of course, the greatest decrease has been in the number of men attending. College faculties are 90 per cent of their 1939–40 strength (men, 83.7 per cent; women, 108.0 per cent). Income from student fees is 64.5 per cent of the 1939–40 figure. Expenditures for educational and general purposes are 115 per cent of the 1939–40 amount. This study makes clear the weakened financial condition of many of our colleges and universities. It indicates strongly that some type of federal assistance may be needed.

The discussion of the issue among college presidents has been especially lively. In an open letter to President Roosevelt released Jan. 31, 1945, twelve university presidents (Conant, Hutchins, Dodds, Day, Sproul, and others) urged that no action be taken on the proposal "until the postwar international situation is clarified." Only eight days later, fourteen other college presidents (Compton, Gates, Seymour, Hopkins, and others) released an open letter to President Roosevelt urging immediate action on the proposal.

At the annual meeting of the Association of American Colleges in Atlantic City, Jan. 10-12, 1945, Gen. George C. Marshall made an informal but excellent presentation of the case for compulsory military training. Nevertheless, the association went on record officially as opposing the taking of any action at this time.

A questionnaire poll of college and university presidents, conducted jointly by the American Council on Education, the American Association of Junior Colleges, and the American Association of University Professors produced 1,196 replies. Over three fourths of the respondents favored delaying any action in the proposal for the present. Asked also their feelings if a decision had to be made *now*, 47 per cent of the presidents were opposed to universal military training, 38.3 per cent were in favor of it; 11.9 per cent were "uncertain," while 2.8 per cent failed to answer this question.

RESIDENT CIVILIAN STUDENTS IN INSTITUTIONS OF HIGHER LEARNING, 1939–40 AND 1944–45, BY TYPE OF INSTITUTION AND SEX OF PERSONNEL.

Type of institution	Enrolment in 1939–40	Estimated enrolment in 1944–45	Per cent of 1939–40 enrolment
Universities, colleges, and professional schools			
Men	743,398	209,638	28.2
Women	423,906	429,178	101.4
Total	1,167,304	638,816	54.7
Teachers' Colleges			
Men	65,581	9,981	15.2
Women	98,315	68,201	69.4
Total	163,896	78,182	47.7
Junior Colleges			
Men	80,929	23,154	28.6
Women	68,925	57,704	83.7
Total	149,854	80,858	54.0
Normal Schools			
Men	3,342	715	21.4
Women	9,807	4,568	46.6
Total	13,149	5,283	40.2
All institutions			
Men	893,250	243,488	27.3
Women	600,953	559,651	93.1
Total	1,494,203	803,139	53.8

Compulsory Military Training.—The advocacy by military authorities of a program of a year's training in peacetime has resulted in much heated debate among educators. Practically every professional journal has devoted at least one feature article to the subject, and there has been a vast amount of editorial correspondence on the subject.

Opposition to the proposal for compulsory military training has been strongest on the part of educational and religious leaders. Yet congressional forces favoring the bill are powerful. Space prevents a summary of the arguments for and against the idea. An excellent statement appeared in *Educational Leadership*, October 1944. Strong arguments for or against the proposal have appeared in successive issues of *School and Society*. An authoritative presentation of the issues involved appeared in the winter 1944 issue of the *American Association of University Professors Bulletin*.

Since the advent of the atomic bomb and the cessation of hostilities, many persons feel that the issue of compulsory military training is a dead one, for, they argue, with such a weapon in our hands only a relatively small army of specialists is necessary. However, general opinion seems to favor postponement of any definite action until the whole situation is a little clearer.

Harvard Report on General Education.—Widely acclaimed as one of the most important educational documents in recent years, *General Education in a Free Society*, the report of the Harvard University committee, appointed by President Conant, was published in July 1945, in a 267-page volume. For two years the committee of

twelve professors, headed by Dr. Paul H. Buck, dean of the faculty of arts and sciences at Harvard, conducted its investigations. Conferences were held with scores of America's leaders in education, business, and industry, who were brought to Cambridge for meetings with the committee. In order to make possible such an ambitious study, the University relieved members of the committee of teaching duties and made available $60,000 for their expenses. The committee was asked to study the place of education in a democracy and prepare a blueprint for American education on both high school and college level. The resulting report is a clearly-written examination of the question, What should be taught in our schools and colleges? A comprehensive program covering both high school and college is suggested.

The Harvard report is in essence a plea for greater emphasis upon "general education" at all levels of instruction. As the committee uses the term it is almost synonymous with "liberal education." It is the sort of education designed to give the individual an insight into the finer things of life, to impart an understanding and appreciation of our common heritage, and to develop well-balanced, emotionally adjusted personalities. General education is regarded not so much as a series of books to be read or courses to be pursued as a concern for certain goals of knowledge and outlook, and an insistence that these goals be sought after as diligently as those of specialization. Education is concerned with the whole man, not his reason alone. Yet the whole man is integrated only in so far as his life is presided over by his reason. "While we thus regard the cultivation of the mind as the chief function of the school, we view reason as a means to the mastery of life; and we define wisdom as the art of living."

The committee recognizes that its recommendations with reference to Harvard cannot be achieved unless tied in with the needs of American education as a whole. Therefore, it outlines first a comprehensive program for the secondary schools. American high schools have become too largely concerned with special education, the committee believes. It recommends that at least half, and preferably three fourths, of the student's time be devoted to general education, consisting of a "core" curriculum built around English, social studies, and science and mathematics. Each student, regardless of his future plans, would be required to spend at least half his time in these three areas. He would be urged to complete twelve of his sixteen units in the area of general education, leaving the remainder of his time for special training in business, agriculture, home economics, or any of the other practical fields.

At the college level the committee again recommends a better balance between general and specialized education. Challenging the elective system introduced at Harvard by President Eliot in the 1890's, the committee recommends that in the future all students be required to take six of the sixteen courses for the bachelor's degree in general education. At least one of the required courses would be in the humanities, one in the social sciences, and one in the natural sciences.

Of special interest are the committee's recommendations for new courses designed to attain the goals of general education. In the humanities it suggests a required course called "Great Texts of Literature," in which the student would gain the fullest understanding of the text studied. Eight books are suggested, chosen from Homer, Plato, the Greek tragedies, the Bible, Virgil, Dante, Shakespeare, Milton, and Tolstoy, but flexibility is emphasized.

In the social sciences the committee proposes a required course called "Western Thought and Institutions," whose central purpose would be the study of the institutional and theoretical aspects of our Western heritage. Other courses suggested in this area are "American Democracy" and "Human Relations."

In the natural sciences the committee recommends two basic courses in the principles of the physical sciences and the biological sciences. Emphasis would be placed upon the nature and evolution of scientific thinking.

The committee warns against placing general and special education in competition with each other. General education is regarded not only as a background for the choice of a specialty but as "a milieu in which the specialty can develop its fullest potentialities." The complete report, published by the Harvard University Press, merits careful reading and study. It is likely to have a profound influence upon American education.

United Nations Charter Recognizes Education.—Shortly before the opening of the San Francisco Conference on April 25, 1945, the U. S. State Department invited 42 voluntary national organizations to send one consultant and two associates to advise with the American delegation. Four major educational organizations were represented: the American Council on Education, the National Education Association, the American Association of University Women, and the National Congress of Parents and Teachers.

As a basis for definite action the American Council on Education canvassed delegates of its 59 member organizations requesting their views. From their replies, it was evident that there was a strong sentiment for the establishment of an international office of education and cultural relations and for the provision of such an organization at the San Francisco Conference if similar provisions were made in the fields of health and labor.

Consequently, the executive committee of the American Council, headed by its president, George F. Zook, meeting in Washington on May 4, 1945, prepared resolutions strongly favoring an international office of education and sent copies to each member of the American delegation. Other educational organizations and institutions sent similar communications.

In a bulletin issued by the council tracing the progress of the proposal, Dr. Zook points out that the Covenant of the League of Nations made no provision for international co-operation on cultural or educational matters, although an International Commission on Intellectual Co-operation was later set up. The original Dumbarton Oaks proposals contained no reference to the place and function of education in the proposed world organization.

At San Francisco there was a protracted struggle to have the words "and educational" added to the phrase "to promote cultural co-operation" as one of the functions of the Economic and Social Council. Finally, the representatives of agriculture, business, and labor joined forces with the educational organizations previously mentioned to support their request for the specific inclusion of "education" in the international charter. In response to the proposals of the four groups, the American delegation agreed to make such a recommendation to the committee. The conference committee thereupon reconsidered its previous action and approved unanimously on May 22 the

proposed rewording as recommended by the United States delegation.

At the same time both the House (on May 22) and the Senate (May 24) adopted resolutions urging participation of the United States in a permanent "international educational and cultural organization." Thus it was clear that the Congress was definitely behind international cooperation in education.

As finally adopted, the paragraph reads ". . . . the United Nations shall promote . . . . solutions of international economic, social, health, and related problems and international cultural and educational co-operation . . . ." The Economic and Social Council is second only to the Security Council. The charter provides that through this body "specialized agencies established by intergovernmental agreement, and having wide international responsibilities . . . . in economic, social, cultural, educational, health, and related fields shall be brought into relationship with the United Nations."

Thus the way was made clear for an International Office of Education with official status, once "inter-governmental agreement" had been obtained. On July 31, 1945, the State Department announced that the British government had called an international educational conference to meet in London on November 1. It also released for publication a plan for an "Educational and Cultural Commission of the United Nations," which would form the basis for the discussions at the London Conference.

This plan was prepared by the Conference of Allied Ministers of Education which met in England in 1944, in which American representatives participated. It proposed that the new organization facilitate consultation among educational leaders in all countries, assist in the free flow of ideas and information on major educational and cultural developments, foster educational programs looking to peace and security, and encourage research on educational and cultural problems.

In November 1945, representatives of 44 members of the United Nations met in London to discuss the establishment of the new agency. Delegates representing every major country except the Soviet Union (which declined both general and special invitations to participate) agreed to form a worldwide educational organization to be known as the United Nations Educational, Scientific, and Cultural Organization.

The formation of such an international educational organization is a step of the greatest significance. It has been widely acclaimed as the most important educational development of our time. The possibilities for the development of mutual understanding among nations are enormous.

In a wireless dispatch from London November 18, 1945) Benjamin Fine, of the New York *Times*, reports that the constitution of the new organization, which was adopted without opposition by the delegates, sets forth a number of fundamental principles: World peace can be attained only by developing a common faith and confidence. Illiteracy and misunderstanding must be removed. The preamble of this world educational charter holds that "a wide diffusion of culture and the education of men for justice and peace constitute a sacred duty that all nations must fulfill in a spirit of mutual assistance and concern."

The constitution proposes an extensive exchange of scholars, teachers, and educational materials. Scientific research is to be stimulated, as well as the study of cultural problems relating to peace. The central theme is that the nations of the world can and should work together to improve the cultural life of all peoples.

The new organization is to open headquarters in Paris. It is one of the specialized agencies provided for in the Charter of the United Nations. The first meeting of the organization was scheduled for May 1946. In the meantime, a special preparatory commission will be at work.

EDWARD ALVEY, JR.,
Dean, Mary Washington College of the University of Virginia.

EDUCATION ASSOCIATION, National. See NATIONAL EDUCATION ASSOCIATION OF THE UNITED STATES.

EDWARDS, Gus, American song writer, actor, publisher, and producer: b. Aug. 18, 1881?; d. Hollywood, Nov. 7, 1945. One of the leading talent scouts of the flourishing days of vaudeville, Gus Edwards discovered such successful performers as Eddie Cantor, Groucho Marx, Joe Cook, Jr., Lila Lee, Mae Murray, Earl Carroll, George Price, Milton Berle, George Jessel, Herman Timberg, the Duncan Sisters, Elsie Janis, and many others. He also composed many popular song hits, including *School Days, By the Light of the Silvery Moon, In My Merry Oldsmobile, Tammany, When the Roses Bloom Again, Don't Cry Little Girl, Don't Cry, I Just Can't Make My Eyes Behave* (written for Anna Held) and numerous others.

EGG PRODUCTION. The 1945 egg crop of the United States, according to the Department of Agriculture, totaled 45,709,000,000 individual eggs, as compared with the 1934-43 ten-year average crop of 33,726,000,000 eggs. Iowa was the leading producing state with an output of 3,609,000,000 eggs; followed by Minnesota with 3,106,000,000; and Texas with 2,863,000,000.

EGYPT. A constitutional kingdom of northeast Africa, bounded east and west by Palestine and Libya respectively; the valley of the lower Nile is the only settled and cultivated area. The total area is 186,198 square miles, and the population was estimated in 1942 to amount to 17,287,000. Originally part of the Turkish Empire, the country was a British protectorate from 1914 until 1922, when its independence was proclaimed. A 20-year treaty of alliance signed in 1936 terminated British military occupation of the country, though Great Britain was permitted to retain in the country troops sufficient to safeguard the Suez Canal until such time as Egyptian forces were in a position to do so. Cairo (pop. 1,312,096) is the capital, and Alexandria (685,736) the chief seaport; other large cities include Port Said (124,749), Tanta (95,260), and Mansura (69,036).

Religion and Education.—The majority of the inhabitants are Moslems, numbering approximately 14,552,695. There are 1,303,970 Christians, consisting of 126,581 Latins and Uniats, 1,099,186 Greek Orthodox and Copts (descendants of the ancient Egyptians who adopted Christianity in the 4th century), and 78,203 Protestants. There are 62,953 Jews and 1,076 of other religions.

Education is free and compulsory for all children between the ages of 7 and 12. In 1943-44 kindergarten and primary schools, both government-owned and private, totaled 696, with 120,425 pupils; elementary schools, 1,296, with

277,997 pupils; and secondary schools, 131, with 48,570 pupils. There were also 54 schools, with 13,825 pupils, giving commercial, industrial, and agricultural instruction. Teachers were trained at 8 colleges for men and 8 for women, in 1943–44 the former having 998 students and the latter 932. El Azhar University, principal institution of higher learning in the Moslem world, is located in Cairo. At the capital, also, is the University of Fuad I, a government institution which had 8,179 students (394 of them women) in 1943–44; at Alexandria was the University of Faruk I, founded by the government in 1943, which had 2,049 students (63 of them women).

Government.—King Faruk I (born Feb. 11, 1920) succeeded to the throne on April 28, 1936. He is assisted by a council of ministers (Mahmoud Nokrashy Pasha became prime minister on Feb. 25, 1945) appointed by him but responsible to a bicameral legislature; the Senate has 147 members, two fifths of whom are appointed by the king and the remainder elected for 10 years; and the Chamber of Deputies has 264 members elected for five years. State revenues for the fiscal year beginning May 1, 1944 were estimated at £E72,690,000, and expenditures at £E76,689,000, leaving a deficit of £E3,999,000 to be covered by the government's reserve fund; the deficit represented the sum required for the first part of the country's new five-year plan. Total receipts at £E72,690 were an increase of 11.8 per cent over the figure of £E65,000,000 estimated for the 1943–44 fiscal year. The consolidated debt on May 1, 1942 stood at £E86,954,940 and Egyptian Tribute Loans amounted to £E5,751,580, making a total indebtedness of £E92,706,520; the charge on account of these debts in the 1943–44 budget was £E4,101,903.

Production and Industries.—Some 8,450,000 acres are cultivable, this being the fertilizing alluvium brought down by the Nile. Egypt is specifically a one-crop country, the most popular and profitable crop being raw cotton. In 1944, 857,949 feddans (1 feddan = 1.038 acres) were under cotton (20 per cent more than in 1943), and the estimated yield was 4,500,000 qantars (1 qantar = 99.01 pounds), as compared with 3,494,392 qantars the preceding year. The cotton crop estimate for 1944–45 was 197,191 metric tons. For the year ended Aug. 1, 1944, the yield of cottonseed was put at 3,470,204 ardebs (1 ardeb = 267 pounds), and cottonseed oil for the year ended Aug. 1, 1945, was estimated at 69,404 metric tons. In 1944, 708,750 tons of rice were harvested, and 38,108,000 bushels of wheat. Other cereals crops, in 1944 were millet, 773,500 tons, and corn, 1,377,040 tons. Other principal products included onions, chickpeas, beans, flaxseed, peanuts, sesame, and citrus fruits. Sugar production in 1943–44 was estimated at 207,000 short tons. Livestock included 30,896 horses, 12,225 mules, 826,796 donkeys, 1,202,284 cattle, 1,001,124 buffaloes, 30,950 swine, 1,423,772 sheep, 759,794 goats, and 174,054 camels.

The petroleum output in 1943 totaled nearly 9,000,000 barrels, 8.7 per cent more than in 1942; extensive surveys for more deposits are being undertaken. In 1943, 1,001,929 cubic meters of limestone were quarried; phosphate rock and manganese are also mined on a considerable scale. There are also commercial quantities of ochers, sulphate of magnesia, talc, carbonate and sulphate of sodium, nitrate of soda, salt, gypsum, and gold. Plants have been erected during the war for the extraction of lead from galena concentrates and for the production of metallic and nonmetallic salts.

About 1,000,000 Egyptians are engaged in industry, the numbers so employed having doubled in the last decade. Skins have been tanned, pottery manufactured, and cloth of cotton, mixed cotton and wool, and silk have been woven from ancient times. Brass, copper, and silver wares are made, and other industries include the manufacture of basketwork, cigarettes, furniture, matting, rugs, cement, glassware, chemicals, and foodstuffs. A paper mill was established in 1944.

Foreign Trade.—In 1941, exports were valued at £E22,122,000, and imports amounted to £E33,127,000. The unfavorable balance of trade was only apparent, as the invisible local sales to British and American troops located in Egypt more than made up for the difference. Great Britain was the greatest purchaser of Egyptian goods, and had the largest share of the import trade. In 1944, 6 per cent of the kingdom's exports were taken by the United States, and the latter country's proportion of the imports into Egypt was 13.2 per cent. The Middle East Supply Center, an Allied organization with headquarters in Cairo, relinquished control over a wide range of imported articles on Jan. 1, 1945; shipping tonnage, however, remained extremely limited. By a financial agreement reached in January, Great Britain agreed to make available to Egypt approximately £10,000,000 of hard currencies during 1945 to cover the need for imports from and invisible payments to the United States, Canada, Portugal, Switzerland, and Sweden; Egypt, on her part, agreed to take over the import-licensing program, having freedom to choose her imports within the amount allocated and within the hard-currency countries.

Communications.—There are 3,686 miles of state-owned railroads, including 2,619 miles of main line, 158 miles of branch line, and 909 miles of sidings; and 862 miles of agricultural light railroads owned by private companies. A Nile steamer service links Shellal, southern terminus of the main line, with Wadi Halfa, whence commences the railroad system of the Anglo-Egyptian Sudan. During the war, British military engineers extended the coastal line westward as far as Tobruk, Libya; and a swing bridge constructed across the Suez Canal affords direct rail service, via Palestine, between the Egyptian railroads and Beyrouth, Lebanon, which now connects with the Turkish railroad system. Highways have an aggregate length of 7,000 miles. Egypt is served by a number of major airlines; in 1945 discussions were proceeding between the governments of Egypt and Great Britain with a view to establishing a joint Anglo-Egyptian company to operate airfields and airlines. During the war large military airfields were constructed in Egypt by both Britain and the United States; the Cairo government made it quite clear in 1945 that "such airfields must be delivered to us, or they must not exist in Egypt."

Principal Events.—Although, by 1945, actual war operations had receded far from the borders of Egypt, the kingdom remained vitally affected by them and by the prospects which loomed with cessation of hostilities. The Greek government had returned to its homeland, but the government in exile of King Peter of Yugoslavia still availed itself of the protection of Egypt to carry on intrigues, looking toward a return to Bel-

grade; and Allied governments, and British and American in particular, housed on Egyptian soil many agencies concerned, directly or indirectly, with prosecution of the war. For herself, Egypt was more occupied with charting her postwar destiny, both as a fully independent kingdom and as one of the great Arab leaders of Islam. During January 1945, King Faruk I made a state visit to Arabia, meeting King Ibn Saud at the Red Sea port of Yenbo. They have many problems in common, notably the manner in which to deal with the international rivalry for civil aviation facilities, the insistent desire of foreign companies to seek petroleum deposits, and the situation confronting Palestinian Moslems should controls on Jewish immigration be relaxed. The renaissance of Arab unity which resulted from the royal meeting was shortly to be indicated by the co-operative efforts of the two monarchs in launching the Arab League (q.v.).

On their return from the Yalta Conference both President Roosevelt and Prime Minister Churchill visited Egypt, the former conferring with King Faruk and other heads of state aboard an American warship anchored in Great Bitter Lake, through which passes the Suez Canal. The subjects of their discussion were not announced, but on February 24, shortly afterward, Premier Ahmed Maher Pasha, leader of the Saadist (dissident Nationalist) Party, arose in the Chamber of Deputies to read a royal decree declaring war against Germany and Japan. The prospects of Egypt's entering the war had aroused great antagonism in some political circles with pro-Axis leanings, and culminated in the assassination of the statesman as he walked toward the Senate to repeat the announcement putting the nation into the war. The murderer, Mahmoud Essawy, a 28-year-old lawyer, was sentenced to death on July 28. Eliahu Hakim and Eliahu Bet-Tsouri, the Palestinian Jews who, in Cairo on Nov. 5, 1944, had killed Lord Moyne, British Resident Minister in the Middle East, were sentenced to die on January 18, and on March 22 they were hanged.

On February 25 King Faruk appointed Mahmoud Fahmy Nokrashy Pasha, vice president of the Saadist Party and theretofore foreign minister, to the vacant premiership, and two days later, Parliament having ratified the declaration of war, Premier Nokrashy Pasha was invested with supra-normal powers to maintain order in the event disturbances threatened. In Washington, D.C., Mahmoud Hassan Pasha, Egyptian minister, signed the Declaration of the United Nations on February 28, at the ceremony stating that "the Egyptian people would like to believe that they have done and are doing their utmost to achieve victory, and they like to hope that, by putting their shoulder to the wheel, they will help construct a just peace based on fraternity, equality, and freedom for all." The Egyptian minister was one of the four delegates, headed by Foreign Minister Abdul Hamid Badawi Pasha, who represented the kingdom at the United Nations Conference on International Organization. At San Francisco the Egyptian delegation presented their country's proposals concerning the basis for the postwar international organization; they felt that the Dumbarton Oaks plan would not attain the desired goal of unqualified equality among the nations, and demanded that the sovereignty of all nominally independent states be fully and expressly recognized.

Besides a general aspiration for equal status in international relations, Egypt was specifically concerned with removing all vestiges of foreign occupation and control from the country itself. A large proportion of the 12,000 United States troops remaining in the Africa-Middle East theater were still stationed in Egypt, and near Cairo a unit of the United States Air Forces operated its own great Payne Field. While it was anticipated that the military forces would soon be withdrawn, the Egyptians feared that the United States was hoping to retain legal title to the airport, the finest in the Middle East. More particularly, as stated by the government in a communiqué on September 23, Egypt was seeking revision in 1946 of the treaty of 1936 with Great Britain (which contained a clause that such a step could be taken after 10 years provided both countries agreed) and incorporation into Egypt of the Anglo-Egyptian Sudan (a subject with which the 1936 treaty did not deal). Egypt also wished to obtain complete control over the Suez Canal, and to secure abolition of all financial and economic restrictions —the latter meaning, in effect, freedom of Egypt from the sterling bloc. The Labour government of Great Britain appeared to regard such proposals from the traditionally Conservative standpoint.

Although Egypt had remained neutral in the war against Italy, she was understandably interested in the disposal of the former Italian colonies contiguous to her own territories. Italian Foreign Minister A. de Gasperi represented to Secretary of State Byrnes on Aug. 22, 1945, that his country retain sovereignty over Libya and Eritrea, with a trusteeship system provided for Italian Somaliland, but on September 25 the Egyptian Foreign Minister informed the Associated Press that his government favored complete independence for Libya (or a trusteeship entrusted either to Egypt or the Arab League), and claimed Egyptian sovereignty for Eritrea on the grounds that it was actually a geographical part of the Anglo-Egyptian Sudan. Russia, meanwhile, had made her own bid for Tripolitania and Eritrea, and Ethiopia was also asking for Eritrea and Italian Somaliland, while Britain, whose troops alone had conquered the Italian colonies, had yet to be heard from. Under the circumstances, fulfillment of Egypt's hopes seemed somewhat dubious.

WHEELER B. PRESTON,
Author and Publicist.

EICHELBERGER, Robert Lawrence, United States Army officer: b. Urbana, Ohio, March 9, 1886. Lieutenant General Eichelberger commanded the American Eighth Army in the Philippines under Gen. Douglas MacArthur. On Aug. 27, 1945, after Japan's surrender, he and his Eighth Army were assigned occupation duty in the Tokyo area. A West Point graduate (1909) and a veteran of First World War service, General Eichelberger has been both teacher and soldier. He was professor of military science and tactics at Kemper Military School, Missouri, 1916-17; instructor at Camp Pike, Arkansas, 1917-18; and at the General Service School, Fort Leavenworth, Kansas, 1926-29. From October 1940-January 1942, he was superintendent of the United States Military Academy at West Point, and as such, streamlined the academy's entire curriculum. In June 1942, he was named commander of the 11th Army Corps, and two weeks later, was transferred to the 1st Army Corps command. He was promoted lieutenant general (temporary) in October, 1942, and in January 1943, was revealed as commander of American troops in

Papua. In April 1944, he took part in the Allied invasion of Netherland New Guinea. He assumed command of the American Eighth Army in September 1944, and in January 1945, had overall command of American troops landing on the west coast of Luzon in the Philippines.

General Eichelberger is a graduate of the Command and General Staff School (1926) and the Army War College (1930). He holds the Distinguished Service Cross, Distinguished Service Medal with oak leaf cluster, and the Legion of Merit, the latter given him for his work with the 77th Division.

EIRE. See IRELAND.

EISENHOWER, Dwight David, United States Army officer: b. Denison, Texas, Oct. 14, 1890. General Eisenhower, who in a wholesale shift of top Army and Navy commanders on Nov. 20, 1945, was appointed Chief of Staff of the U. S. Army by President Truman to succeed Gen. George C. Marshall, was supreme commander, Allied Expeditionary Force, for the invasion and conquest of Nazi Europe. On March 29, 1945, he was named head of the United States military government in Germany, one of four Allied commanders in chief given supreme authority over the Reich. On May 6 (Eastern War Time), he accepted the German military surrender, terms of which were formally ratified and confirmed in Berlin on May 8. He attended the first meeting of the Allied Control Council for Germany on June 5. On June 18, General Eisenhower was accorded a hero's welcome in Washington, D. C., and there addressed a joint session of Congress. On July 14, he announced the liquidation of SHAEF—Supreme Headquarters, Allied Expeditionary Force—and revealed that the building occupied by SHAEF's staff would thenceforth be headquarters for the United States Force, European Theater.

A graduate of the United States Military Academy (1915), the Command and General Staff School (1926), and the Army War College (1929), General Eisenhower's first big assignment in the Second World War was that of commanding Allied troops for the invasion of North Africa; he was designated commander in chief of all United Nations forces in the North African theater in November 1942, and as such, directed the Tunisian, Sicilian, and Italian campaigns. His masterful blending of Allied forces into a highly effective military machine, and his natural talents as a diplomat made him the obvious choice for the post of supreme commander of the Allied Expeditionary Force for the invasion of Europe. In December 1944, he was designated general of the army, following congressional legislation creating this new rank. His military decorations include the Distinguished Service Medal (U. S.) with oak leaf cluster, Distinguished Service Star of the Philippines, Knight Grand Cross of the Most Honorable Order of the Bath (Great Britain), Grand Cordon, Legion of Honor (France), Order of Suvorov, 1st class, 1944 (USSR).

ELECTRICAL AND ALLIED DEVELOPMENTS OF 1945. A review of the engineering accomplishments of the electrical industry during 1945 is a story of war and of reconversion to peace. Some plants found reconversion easy—just a matter of slight changes here and there in production lines or products. In most cases, however, reconversion meant major changes. From war production industry learned many new and improved processes—acquired added precision in production techniques, discovered new basic materials with which to work, evolved machinery of increased power, efficiency, and adaptability. The lessons of war production were not lost, but are reflected in new products developed for industry, commerce, and the home. In the following paragraphs some of the year's developments—including not only electrical but also mechanical, chemical, and allied fields, the references are to products or engineering accomplishments of the General Electric and its associated companies. Covering such a wide range as they do, the references indicate the tendencies in design and construction as well as the general progress in the electrical manufacturing industry as a whole.

Atomic Power.—The atomic bomb was, of course, in itself strictly a product for war, to which the electrical manufacturing industry as a whole contributed mightily. Different concerns were called upon for different items, some of them more or less standard products but others highly special. All were called upon to produce qualitatively, quantitatively, and quickly. Enormous volumes of all kinds of electrical equipment were involved — turbine-generator sets, metal-clad switchgear, high-voltage rectifiers, power and auxiliary transformers, unit substations, cable, motors for blowers and pumps and all sorts of drives, protective and metering equipments, electric furnaces, electron tubes, and still other types of equipment too numerous to mention. And there were the many devices for process instrumentation, many of them engineered completely new, including mass spectrometers, acoustic gas analyzers, ionization counters and timers, valve operators, position transmitters, pinhole detectors, vacuum gages, dew-point recorders, and many more.

Future Power.—In reviewing the electrical developments of 1945 it is hardly necessary to go into detail about atomic bombs. The radio, the newspapers, and the forum speakers have told all that can be told. There are, however, real reasons why the electrical industry is interested in atomic energy. Fundamentally the electrical industry is in the business of generating and applying power. New sources of energy for electric power are always being sought—the airplane jet engine of the just-completed war is, in a different form, a new source of power for driving electric generators. Atomic energy, too, has its possibilities.

Research scientists and engineers are conservative in what they envision as the future of atomic power. "In the course of time—probably a considerable number of years—several prospective uses of nuclear energy will become technically possible. Whether any or all of them will be economically practical, it is far too early to predict. As we see it today, the most probable utilization of nuclear energy is as a source of heat, which may in turn produce steam or hot gases for use in more or less conventional types of power-generating equipment. Direct conversion from nuclear energy to electric power in usable form seems to us an extremely remote possibility. Were we responsible for conducting the affairs of a central station, or a railroad, or other business in which the generation or use of power is of extreme importance, we should go right ahead with our plans for the years to come on the basis of present-day commercially available sources of energy; namely coal, oil, and water power." This was a statement by Dr. C. G. Suits and H. A. Winne, General Electric vice

presidents in charge of research and engineering respectively.

Power Generation.—A survey of equipments newly delivered or under construction shows that the "average" steam turbine of tomorrow will operate at high pressure and high temperature—with resultant fuel economy—and will drive a 3,600-rpm. hydrogen-cooled generator. There will be more new turbines at pressures of 1,200 pounds and higher, more in the 800- to 900-pound level, and definitely fewer at 600 pounds and lower pressures. Seven eighths of them will be for temperatures of 900° to 1,000° F., and only a few for temperatures below 750° F. Three quarters of all new electric generating capacity, including practically 100 per cent of all large machines, will be hydrogen-cooled in those sizes above the minimum for which such is economic.

The Essex Station of Public Service Electric and Gas Company of New Jersey will have a tandem-compound double-flow turbine of 100,000-kilowatt capacity at 3,600 rpm. It will be the largest turbine so far contemplated for operation at high pressure (1,250 pound per square inch gage) and 1,000° F. initial temperature.

Gas turbines for industrial applications were in use before the war. All of the know-how unearthed during the war, when gas turbines were developed for aircraft jet and propeller propulsion, is now available to extend the peacetime applications of this new power plant.

Several hydroelectric projects held up during the war were released for production, including the fifth 75,000-kilovolt ampere generator for Shasta Dam and numerous units for other dams. Work progressed on three 90,000-kva. units for Dnieprostroi, USSR, believed to be the largest diameter and heaviest waterwheel generators yet built.

War demands led to a small portable engine-driven a-c generator with peacetime applications on farms, in industry, on construction projects, in communication and transportation. Still another war generator, produced for use on tanks and heavy ordnance vehicles, has possibilities as a power source on large air-conditioned buses and refrigerated trucks.

Transformers.—A power transformer, the first of two 50,000-kva. units, was noteworthy not only because of its size but also because of the many controls required to handle its varying load. Including its 21,000 gallons of oil it weighs 452,000 pounds and measures approximately 33 by 22 by 33 feet; it is one of the largest transformers built in recent years. Because of varying system conditions, two load-ratio-control equipments are required.

Detachable forced-oil coolers, easily removed for shipping, greatly reduced the required amount of radiating surface compared with conventional self-cooled radiators. Distribution transformers were given a new sealed-tank construction in which cover gaskets of special synthetic rubber are firmly compressed between tank flange and inside rim of the cover, preventing entrance of moisture and thereby improving service continuity.

Switchgear.—Outdoor oil-blast circuit breakers achieved additional compactness, chiefly by reason of a new, smaller interrupter, a new sealed bushing, and a rearrangement of the parts. Air-blast circuit breakers for large power stations were given better interrupting and operating characteristics by introduction of an improved arc chute and interrupting element. Currents with a rate of rise of 7,000,000 amperes per second were interrupted satisfactorily by a new rectifier anode circuit breaker, so rapidly that current-limiting action is provided within ¼ cycle (1/120 second) after a current reversal of the anode circuit.

Unit Equipments.—Mobile unit substations were streamlined, and their weight lessened to meet highway specifications of most states. By the end of the year equipments were in use in half of the states, as well as in outlying possessions and in foreign countries. The many highly successful applications of the units in helping to rebuild war-devastated areas of Europe emphasized their peacetime applications in re-establishing service interrupted by fire, flood or hurricane, or during system change-overs or overhaul of regular substations, and to handle seasonal overloads or large temporary requirements.

To help get coal mines back into service after the Germans were driven out, several low-height portable substation units were sent to Norway. Mounted on small metal wheels for narrow-gage mine rails, the units are rated 150 kva. at 50 cycles, weigh only 5,200 pounds complete, and are only 42 inches high.

One of the many war projects about which little was published were the four 30,000-kw. steam-turbine floating power plants, built for the War Department as emergency portable power plants available for expected power shortages in critical manufacturing areas. The barges were designed for inland water use through canals and rivers; are 318 feet long, 50 feet beam, and 9 feet draft; and have smoke stacks and other deck equipment removable for low bridges. Three of the barges went overseas for use during initial stages of rehabilitation. They went into 50-cycle territory, so their 60-cycle equipment underwent changes before they were sent abroad.

Rectifiers.—An interesting application of large pumped ignitron rectifiers was made at an eastern steel company hot-strip mill, where rectifiers of 7,000 kw. capacity at 600 volts were successfully paralleled with as many as six 1,500-kw. d-c generators.

Lightning Arresters.—A research program investigating all the corrosion influences that might affect operation of pellet-type lightning arresters led to several improvements assuring elimination of moisture and corrosion effects and thus providing more constant performance

Capacitors.—There were some really small capacitors made during the war. One in particular was a lectrofilm tubular capacitor, a number of which went into each VT or variable time fuse, a miniature radio set in the nose of a projectile that exploded when near its target. Lectrofilm is a synthetic dielectric material developed during the war and used for certain applications for which only mica was previously considered suitable. These VT capacitors, which became familiarly known as "matchsticks", will have postwar applications in compact, lightweight electronic equipment such as FM radios, radar, hearing aids, television, automatic controls, and a host of similar products.

Cable.—Over 100,000 feet of high-voltage cable insulated with butyl high-voltage compound went into service during the year and established excellent performance records. High-pressure gas-filled cable for use up to 138 kv., in either ducts or pipes and suitable for 200-pound operating pressure, was made available.

Operation PLUTO (Pipe Line Under The Ocean), one of the Allies' secret weapons in the invasion of Continental Europe, was the means

for getting a million gallons of so-essential gasoline each day from England to France, without use of highly vulnerable tankships. It was a group of twenty 3-inch oil pipelines laid under the English Channel. One type of the pipe resembled a submarine electric power cable in its construction with, of course, the conductors and core omitted. General Electric was one of four American concerns that produced miles of this nonelectric product.

Motors.—Tri-Clad design, originally applied in 1940 to open (drip-proof) a-c motors was extended during the year to totally enclosed fan-cooled motors in standard and explosion-proof types from one to 300 horsepower. Tri-Clad open motors were extended to 2,000-hp., considerably above the previous largest 300-hp. squirrel-cage induction and 75-hp. wound-rotor types.

Motors with speed regulation within ½ of 1 per cent, using conventional d-c shunt winding, were applied in large numbers during the war for radar, communication and other purposes. More accurate control, down to 1/10 of 1 per cent was also furnished, using amplidyne-type motors.

Control.—Maxspeed adjustable-voltage control, previously used for crane hoists and similar equipments, was applied advantageously during the year to winches on cargo vessels. The new control system eliminates the necessity for large, centrally located conversion equipment, simplifies power wiring, and has as good—and in some respects better—hoisting and lowering characteristics as the customary d-c system.

Welding.—The welder-jeep, which furnished fast and mobile arc-welding service for the army, has been adapted for civilian use, particularly for construction jobs, industrial plants, utilities, and mining properties. It is easily portable and carries its power to the job. An a-c welder designed for electric cutting and welding on shipboard features unusually light weight and dimensions to go through small hatches and doorways. Technique and equipment to weld light metals and alloys with the inert-arc process were improved, and the process used to weld aluminum, magnesium, and stainless steel on a commercial basis. Particular attention was given to the welding of light metals without a flux. An electronic synchronous precision weld timer, including electronic heat control, was made available.

Heating.—Higher temperatures than can be obtained with other metallic-resistance furnaces were attained in several rotary-hearth furnaces in which the heating units are rods of pure molybdenum, formed into loops and supported by refractory insulators built into the inner and outer walls of the heating chamber. Operating at temperatures up to 2,500° F., the furnaces were applied to the heating of stainless steel parts for forging, heat treating of alnico magnets, and of other special alloys. A protective atmosphere prevents oxidation of both the work and the molybdenum units.

More than 30 large electric brazing furnaces had a war job in the production of M-69 and M-74 incendiary bombs. Trayloads of casings, double-decked for good loading efficiency, were passed through the roller-hearth conveyor-type furnace.

Construction Machinery.—A significant trend was noticeable in the field of construction machinery, with extended electrification of mobile asphalt, gravel, and other aggregate-handling plants, and of heavy earth-moving machines. The complexity of chains, belts, gears and clutches, with unavoidably high maintenance expense, is giving way to unit electric drives. Mobile generators driven by combustion engines supply the power for the drives. Simpler and safer operation, lower cost, and more uniform output are attained. The generator also provides for lighting of the plant and area, making 24-hour operation possible.

Steel and Aluminum.—The steel and other metal industries have many new and interesting possibilities for speeding up and modernizing their processes. Some cold-reduction mills operate at speeds as low as 150 feet per minute; there is one with a speed of 3,850 fpm. Its record-breaking production of high-quality on-gage strip has focused the industry's attention on the need of modernizing and speeding up, or building completely new mills. Single-purpose mills—one mill for tin-plate schedules and another for sheet schedules, for instance—are recommended. In the several new mills and in many others being modernized the application of amplidyne control was conspicuous. Amplidyne adjustable-voltage control was widely applied, in one case practically tripling the speed of pickling lines.

Petroleum.—The wartime-developed electro-hydraulic governor for Diesel engines was applied advantageously to a large Diesel engine oil-well drilling equipment, built for exploratory drilling to 15,000 feet. Its three 375-kw. Diesel-driven d-c generators may be paralleled to supply the 1,000-hp. draw-works motor or may be individually operated to supply the mud-pump, rotary table, and coring-reel motor. A new governor makes it possible to run the engines at the speed called for by the driller instead of at continuously top-rated speed; prevents engine overloading by automatically reducing the generator field; and controls all three engines from one driller's master switch, with the governors causing the engines to divide the load automatically when they are paralleled. All these features greatly reduce maintenance and fuel consumption.

Chemical Industries.—A motor—or any other electric equipment—in a powder plant must be explosion-proof. "Wringer" motors supplied for centrifuging nitrated cotton had their vertical shafts designed to take the weight of the wringer basket. The magnetic control, including the secondary resistors, is completely oil-immersed.

Mining.—Open-cut mining at the unusual depth of 40 to 70 feet was made possible by a walking electric dragline in an Indiana coal strip mine which about once a minute removes 25 cubic yards of rock and earth overburden from coal deposits. In common with other large excavators supplied with electric equipment during the year, this machine uses amplidyne control equipment for all motions. To the ever-growing list of large d-c mine hoists incorporating the amplidyne exciter system there were several additions, including the first fast coal mine hoist so equipped. That hoist carries 4½ tons of coal up each trip from a depth of 487 feet, and is rated to make 167 trips per hour.

Rubber.—Several interesting engineering developments were recorded in sectional drives for rubber, linoleum, plastics, and similar industries. In the tire industry, for example, where line-shaft drive was previously the conventional type, a complete electric sectional drive was being introduced for a four-roll calender with processing auxiliaries. One advantage of the new drive will be that it permits measurement and control of tension throughout the calender processing line. A large sectional drive being built for a new

linoleum-making process consists of mills and mixers which compound the linoleum plastic and color it with variegated effect, and calenders which roll it on burlap backing. Then it is baked, in sheet form, and wound up. The electric control provides a constant-speed regulating system operating over a 32:1 range, determining the compounding and coloring of the mix and the calendered gage. In addition, constant-tension control is supplied in certain sections for handling the final sheet.

Lumber.—A 1,500-hp. synchronous motor, about three times the size of any synchronous motor built previously for such service, was direct connected to a wood chipper, the disc of which is 175 inches in diameter and which carries four radial knives on its face. Logs up to 40 inches in diameter are handled at a rate of a foot per second.

Textile.—By pre-stretching rayon cord almost to its limit and setting it at that point it became possible to produce better synthetic rubber tires. The necessary co-ordination of the speeds of seven motors used in the process was accomplished by use of a drive incorporating Thy-motrol motor control to maintain preset tension values and to accelerate and decelerate the motors smoothly.

Machine Tools.—Almost anything that can be cut from a pattern or template with a motor-driven tool can be produced accurately and completely automatically with a machine equipped with a new automatic contour control system which literally has a "sense of touch." When a change in pattern contour is encountered by the tracing stylus, the two feed motors change speed simultaneously as required to reproduce the same contour on the work in the machine. Motion of the tool across the work is continuous and at a constant rate, and tool marks are evenly spaced regardless of the direction of travel of the tool, insuring a good finish. Machines equipped with such control turned out many complicated parts for turbosuperchargers and jet engines during the war.

Farm Industry.—A new floating de-icer designed for keeping water continuously available for livestock in the cold season, works equally well in any size tank, insulated or not. Little of its heat is dissipated through the water—the heat is only to keep the float free from ice so the livestock can nose down to drink. For barn hay-drying installations, which add so much to the value of hay, an improved co-ordinated control set was developed. The set is easily installed, and is positive and versatile. It is possible also to use the motor for hoisting hay, filling silos, sawing wood or operating a refrigeration compressor when not required for hay drying.

Farm and rural distribution systems—not to mention farm wiring itself—previously limited the use of arc-welding equipment on the farm because of the power demand of the equipment. An arc welder featuring low power demand was developed in two ratings for farm and workshop use. Heat, ventilation, and germicidal irradiation of air so necessary for raising healthy chicks were incorporated into a brooderator unit supplied ready for installation in a hover.

Aviation.—Among officially announced planes of 1945 were the Lockheed P-80 *Shooting Star* of the army and the Ryan FR-1 *Fireball* of the Navy, both of them jet-propelled. The *Shooting Star*, an escort fighter and intercepter, is the fastest fighter airplane in the world, with a speed well over 550 miles per hour, maximum altitude in excess of 45,000 feet, and a long operating range. It is single-engined, and has exceptional maneuverability and fire power. The *Fireball* is powered by a conventional reciprocating engine augmented by a jet engine. Designed as a carrier-based navy fighter, it is the first shipboard fighter to use tricycle landing gear. Its exceptional speed and rate of climb are the result of the use of the jet assist unit in the aft fuselage.

Development of a new type of aircraft power plant, which through two-way harnessing of a gas turbine drives a propeller and boosts with jet thrust simultaneously, was also announced. Power generated by such units is already great, and engineers see no basic difficulties in increasing the propulsive output of this type of gas turbine to almost any amount visualized as necessary to drive projected mammoth planes of the future—it is generally agreed that the size and power developed by conventional reciprocating engines is reaching the peak which can be attained without prohibitive complexity. The new gas turbine may not give the speed of planes like the *Shooting Star*, but it will give ranges greater than may be possible with pure jet propulsion.

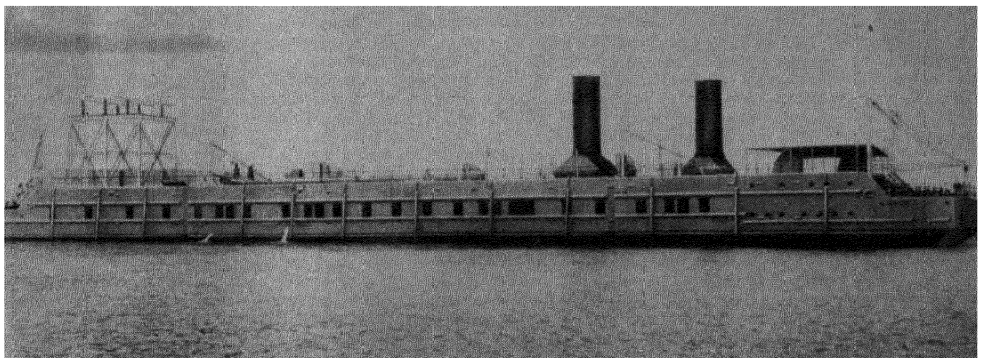
Following up on the success of the turbosupercharger-pressurized cabin of the B-29 Superfortress, a cruising turbosupercharger was under development for postwar aviation, to permit operation of commercial airplanes at higher altitudes with reduced fuel consumption and to condition cabin air. Such a cruising turbo will be smaller and lighter than those on war planes since it will not be called upon to provide full-power airflow except at low altitude.

Automatic engine control was introduced to permit the pilot to operate the power plant from one lever in the cockpit rather than using throttle, propellor control and boost control separately. This and the turbosupercharger regulator, similarly automatic, were applied to the Republic P-47N Thunderbolt and other aircraft.

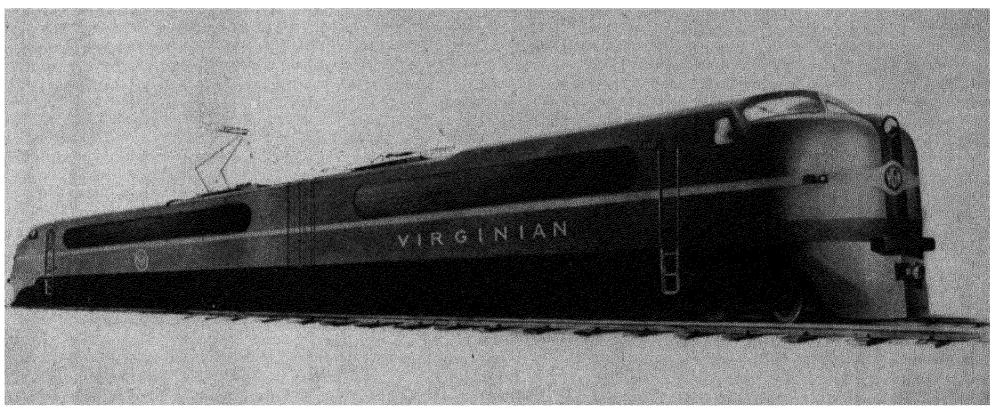
Marine.—Outstanding in the field of Diesel-electric propulsion equipment was a development in the insulation of the rotating apparatus. Indications are that it will be possible to obtain a 40 per cent increase in output within the same space and weight limits. Sectional floating drydocks went into service in the Pacific, giving the navy "repair bases today where yesterday there was none." The sectional construction permits the units to be towed, with wing walls down, to a protected location as close to combat zones as advisable, and there assembled and put into service. Placed together, 10 of the sections will float a battleship, 7 will care for a cruiser. As the sections are joined mechanically they are also tied together electrically, with synchronizing facilities provided for multiple operation of any number of sections. Because each section is a complete unit in itself, as well as a "hotel" for the men who comprise the service crew, large amounts of electricity are used. This is supplied by Diesel-driven generators on each section, and is used to operate machine tools, cranes, welders, anchor windlasses, hoists, blowers, compressors, ventilating and refrigerating units, and pumps for emptying and filling buoyancy compartments. The docks are equipped to supply the vessel under repair with both a-c and d-c service.

Railroads.—First locomotives of any type to carry a million pounds on the drivers will be the four which the Virginian Railway is obtaining for its heavy coal-haulage operations over the Allegheny Mountains. These motor-generator locomotives, using 11,000-volt, 25-cycle single-

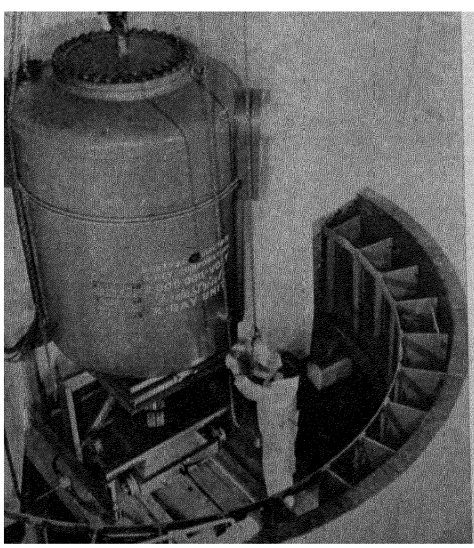
ELECTRICAL AND ALLIED DEVELOPMENTS



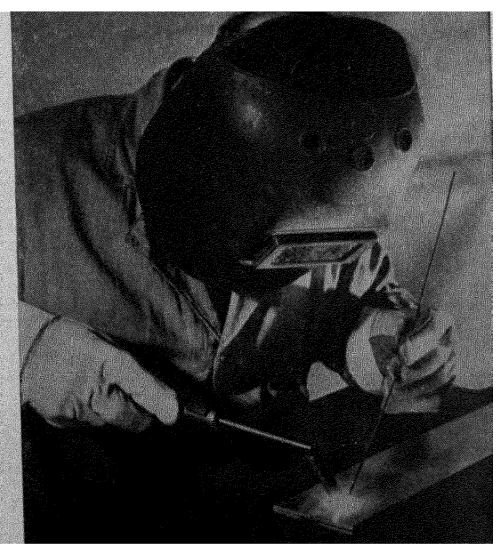
One of four 30,000-kilowatt floating power plants. Three were sent to Europe for rehabilitation work.



One of the huge 8,000-horsepower electric locomotives to be built for the Virginia Railway, the first of any type to carry a million pounds on the driving wheels.



Elwood Ordnance Plant's 2,000,000-volt X-ray unit. Simultaneously it X-rays material on a conveyor on the main floor and below it in the basement.



Courtesy General Electric Company

Manual helium-shielded-arc welding being done on light-gauge magnesium plate. The inert-arc welding process is ideal for light metals and alloys.

phase power, will be constructed as two cab units, with all weight on a total of 16 driving axles. Among other large electric locomotives for several railroads are two for the Great Northern which will be the largest single-cab locomotives ever built, to be used on the electrified Cascade Tunnel section of that road. They will have a knuckle-to-knuckle length of about 100 feet and will weigh 360 tons, with all weight on the drivers. A complete 6,000-hp. Diesel-electric locomotive developed for Fairbanks Morse and Company consists of three single-engine units, each weighing 160 tons, all on six axles. The trucks are of all-welded construction.

Rapid Transit.—Two 1,000-kw. 600-volt mercury-arc rectifier substations installed by the Honolulu Rapid Transit Company marked the first application of sealed ignitron tubes for railway substation service. They were also the first stationary outdoor installations of sealed tubes. Another "first" for railway power supply will be the 24-phase, 1,500 kw., 600-volt sealed ignitron mercury-arc rectifier substation of the Chicago and North Shore Railway. Multiphase operation, patterned after existing large industrial power applications, was used in this relatively small installation to avoid interference with communication circuits.

Testing and Measuring Equipments and Methods.—Conspicuous among new testing equipments was the largest and highest-speed electrical power absorption machine, under construction for use in gas-turbine development programs. The largest and fastest model-boat towing-bridge laboratory was being supplied with unusual equipment. The largest electrical low-speed dynamometer was designed for testing turbine-propulsion units for future ships.

The variable-density wind tunnel put into operation by Curtiss-Wright Corporation in Buffalo contains the most highly flexible range of testing conditions in the country and will help bring into being a flying ship closer to perfection than would be possible without this testing technique.

Meters and Instruments.—Far-reaching possibilities are seen for improved measuring devices in a new method for suspending moving elements magnetically. The availability of comparatively new magnetic alloys which can maintain strong and stable magnetic fields in small space led to the development of such suspension. Counteracting the force of gravity, it promises negligible mechanical friction and long-time service. Many new meters, instruments, calibrating and measuring devices were produced during the year. Interesting construction was incorporated in many of them. Studies of smoke, powders and pigments, as well as surface phenomena which cannot be studied by X-ray diffraction because of the greater penetration of X-rays, were provided for with an electron diffraction instrument

X-Ray Equipment.—The year 1945 marked the 100th anniversary of the birth of Roentgen; and the 50th anniversary of his discovery of X-rays. Four 2,000,000-volt industrial X-ray units were in service at the end of the year, and another was scheduled for early installation. The one at the Elwood Ordnance Plant near Joliet, Ill., was particularly outstanding. It was used for continuous X-raying of conveyorized 250-pound bombs and 8-inch shells on the main floor, using the reflected beam, while simultaneously 240-mm. shells and 1,000-, 2,000- and 4,000-pound bombs were X-rayed in the basement, using the transmitted beam. The equipment almost entirely eliminated destructive testing, which not only ruined the shell or bomb but was inadequate for detecting defects not near the plane of cross-section.

Peacetime trends as well as wartime uses were illustrated by new applications of the 1,000,000-volt industrial X-ray equipment—in the examination of jet-propulsion components by General Electric, the inspection of heavy armor plate by Pressed Steel Car Company at Chicago, of heavily armored combat vehicles by General Motors at Grand Blanc, Mich., in the development of combat vehicle armor plate at the Rock Island Arsenal, and in the construction of crude-oil fractional-distillation apparatus.

X-ray diffraction equipments continued to find expanded fields of application in research and control laboratories. Chiefly they went into the oil industry, in connection with investigations into the properties of catalysts; the control of ceramics processes; metallurgy, especially in the use of new high-temperature alloys; and organic chemistry, particularly in the control of the production of natural and synthetic yarns and synthetic rubbers.

In medical X-ray equipment a major engineering advance was made with the redesign of photo-roentgen apparatus so that it can be taken apart or assembled by two men in a half hour, without use of tools.

Electronics.—A new field for electronics announced during the year was radar—announced not because it was brand new then but because previously it was a guarded secret. Growing out of extensive research and production of radar equipment for war applications, the electronic navigator—a shipboard equipment for commercial vessels—was the first peacetime application of radar. It will revolutionize thick-weather navigation, providing the mariner with an instrument to pilot a safe course, even though his normal visibility is strongly limited by natural conditions. The equipment can detect through darkness, fog or storm the position of any above-water obstacles, such as lighthouses, buoys, icebergs, other ships, and land, up to a distance of 30 miles depending on the size of the object.

Radio Transmitters.—A two-way radio, weighing only 15 pounds complete, was designed for private aircraft, to permit the flyer to use the radio range system for navigation; to communicate with airport control towers and range stations for weather, flight and landing instructions; and to enjoy broadcast reception. Pioneer installations of two-way frequency-modulation radio equipment were made in buses and taxicabs. Quick communication between operator and headquarters facilitates schedules and solutions of emergencies. Frequency-modulation broadcast transmitters were redesigned specifically for the newly allocated high-frequency bands; and the FM circular antenna changed so that one element, or doughnut, is within the other, thus lessening wind resistance.

Radio Receivers.—Production of home radio receivers was resumed during the final quarter of 1945. Alnico V, two and one-half times as powerful as the best available prewar magnet material, was applied in new loudspeakers, making them lighter, more compact, and more sensitive. Improved sensitivity, frequency response, and permanence of alignment resulted from adoption of molded diaphragms for speakers, preformed directly from wood pulp and pressed into final shape between hot dies. The farmer was not forgotten. Included in the new receivers were

two that can be converted readily to a-c operation when the home is electrified. All that is required is insertion of a rectifier tube.

Carrier Current.—Frequency modulation, applied commercially to power-line carrier current for the first time during the previous year, was expanded in 1945 to improve and extend the distance of transmission of all types of carrier-current voice-communication. The improved discrimination against noise obtainable through FM also made feasible the design and successful application of mobile carrier-current communication for electric utilities and railroads. The adaptation of crystal filters and oscillators to FM frequency-shift equipment brought about still further improvements in transmitting range and in noise reduction, and increased the available number of carrier channels for telemetering, load control, and similar services that require transmission over unusually long distances.

Electron Tubes.—A triode similar in structure but of higher power than the previously announced "lighthouse" tube was developed as a low-power transmitting tube at frequencies up to 500 megacycles. While similar in structure, it is quite different in appearance; the anode is the larger end of the tube and is fitted with a radiator to dissipate relatively large amounts of power —depending upon the class of service, outputs of from 18 to as high as 40 watts may be obtained from two tubes.

Plastics.—Silicone rubber attained prominence during 1945 as a high-temperature electrical insulation. Production was on a pilot-plant scale, but the material was made available for special applications requiring chemical inertness and ability to withstand temperatures of nearly 400° F. (200° C.). Applications of silicone rubber had previously been confined, because of limited production, to heat-resistant gaskets for war-essential turbosuperchargers and navy searchlights, services where rubber could not withstand the temperatures.

Silicones — unusual chemical compounds in which silicone behaves much as does carbon, its close relative, in organic chemistry—include more than this unusual rubber. There are silicone oils, greases and resins as well, also with unusual properties. Silicone oils, applied in hydraulic applications, have remarkably constant viscosity over a wide temperature range and are so chemically inert that their structure remains unchanged under conditions that would cause petroleum oils to break down. Silicone greases were developed as a lubricant for applications at elevated temperatures or where corrosives are encountered. While closely resembling conventional resins in physical appearance, silicone resins have higher thermal stability, improved dielectric properties, and greater mechanical strength and toughness.

For radar and other electronic devices employing extremely high frequencies, where temperature requirements are above the limit of previous thermoplastics, there was developed a thermo-setting material which only softens to a rubbery gel at high temperatures and which will not flow. No decomposition is noticeable at 392° F. (200° C.), and upon cooling it hardens again without losing its shape—permitting soldering and such operations very close without permanent distortion.

Permafil "solventless varnish," although available in only relatively small quantities, was given extended applications during the year for impregnating, laminating and casting applications, and as a base for protective coating and compound binders. The uncured material is an easily poured liquid which cures or hardens to a hard, dense solid when heated. The curing is accomplished with practically no volatile loss, particularly important in filling and impregnating applications.

Illumination.—Sunlight, 24 hours a day and independent of the weather, is now a possibility. Through the use of the latest developments in the field of illumination, the sun's radiation has been duplicated in the Lighting Institute at Nela Park, Cleveland, Ohio. Combining the radiation from fluorescent, mercury, sun, and incandescent lamps, engineers were able to produce an artificial sunlight visually indistinguishable from the real thing—complete with tanning and warming effects—but the fact that about 100 kw. of power are required for an area the size of an average private office suggests that artificial sunlight may be restricted to a very few installations in the immediate future.

Using a new phosphor, fluorescent sunlamps were introduced to bring the advantages of sunlight indoors economically. Only standard fluorescent auxiliary equipment is required. One type, for use with poultry, has 75 per cent germicidal and 25 per cent erythemal (tanning) radiation. Another type, in 20- and 40-watt sizes for personal use, produce only sun-tanning erythemal energy. It is estimated the new 40-watt sunlamp is 15 times as effective per watt of input energy as the well-known S-1 lamp in production of erythemal radiation.

Split-second starters for fluorescent lamps were created, eliminating the warm-up period common to most fluorescent installations. Circline fluorescent lamps became the inspiration for new designs of portable lamps for the home and of decorative fixtures in commercial applications. Some lighting engineers estimate that 75 per cent of the uses for the circular lamps will be found in homes.

Development of a new white fluorescent lamp having a color temperature closer to that of daylight than that of the 3,500° white lamp—and more flattering to the complexion than the daylight fluorescent lamp—was announced. It emits more warm red. Also new was a low-brightness, 40-watt, 4,500° white, 60-inch fluorescent lamp which requires less shielding since it has a brightness only slightly more than half that of the standard 40-watt fluorescent lamp.

Christmas tree lamps again rolled from machinery late in the year—machinery which during the war had been switched from the production of cheerful colored bulbs to the deadly serious business of forming a basic part of the radio-operated VT fuse. Mass production of the fuse called for large quantities of a small glass ampoule filled with acid and sealed. Similarity of production problems of the ampoule and Christmas tree lamp was apparent, and the lamp machinery was converted.

Sealed-beam landing lamps for large and small private planes were announced, following their successful war operations. This type of construction, originally used for automobile headlights, was also applied to a lamp for farm tractor lighting and to a clear-glass, shielded filament, spotlight lamp.

The repeating flash tube played a leading role in night aerial photography from reconnaissance planes over enemy territory. Powered by a special electronic source, a coiled quartz tube emits flashes of illumination of an intensity mak-

ing night photographs possible from altitudes up to two miles. Plans for postwar uses of the tube call for applications in airway and waterway beacons, as well as in photography.

A 375-watt heat lamp was introduced as a companion to the standard 250-watt lamp in industrial drying applications, to permit a 50 per cent increase where needed in watts per square inch with the same spacing arrangement.

Air Conditioning.—Air-conditioning engineers became more aluminum-wise, and developed an aluminum air-conditioning cabinet weighing 25 instead of the prewar 45 pounds, which forms the base for a more practical and appealing fine-grain finish that is far easier to clean. A new oil-fired conversion burner has just half the cubic content of the old model, with weight down from 105 to 65 pounds. Gas-fired warm air conditioners decreased 25, 50 and 75 pounds in different models.

The success of such wartime developments as the de-boning and freezing of meats, the freezing of fresh citrus juices, the spectacular growth of popular interest in frozen foods and locker plants opened up a whole new industry within the food industry. Meat packers, canners, fruit and vegetable producers, and dairies entered the frozen food field in increasing members. An interesting development has been the growth of frozen food centers in urban and suburban centers, with a trend toward handling commercially frozen food in both urban and rural locker plants.

Appliances.—Shortly before V-J Day it was possible to manufacture refrigerators, portable heaters, electric irons and clocks, and to organize facilities for additional items. Ten days after the war ended, Bridgeport completed its first washing machine. Other items followed rapidly: Vacuum cleaners, ranges, ironers, electric blankets, waterheaters, dishwashers, Disposall kitchen waste units, mixers, toasters, roasters, coffee makers, grills, waffle irons, heating pads, and heat lamps. Within five months after V-J Day the complete appliance line was to be in production. For the most part, however, the first appliances were modified 1942 models not requiring new tools, fixtures or facilities, and not all models were put into production. One style of washer, three refrigerators, three ranges, three ironers and one roaster, for instance, were made. For electric blankets a new single-strand heater wire was developed to replace the prewar multistrand wire. It has a flexing life more than twelve times that of its predecessor.

Lighter in weight and smaller in overall dimensions than conventional nonmetallic sheathed cables, a new type, designated PVX, uses small-diameter, color-coded, thermo-plastic-insulated conductors. It carries higher current than other nonmetallic sheathed cable without exceeding safe operating temperatures.

Research.—"We have now arrived at the stage where we can generate in the laboratory radiations which formerly were available only in the cosmic rays, and we are just passing the borders of an entirely new field of atomic research." This statement by Dr. C. G. Suits, director of the G-E Research Laboratory, referred not to atomic bombs but to the laboratory's 100,000,000-volt induction electron accelerator, or betatron. It went into operation in 1943, but secrecy prevailed on all work related in any way to the field of nuclear physics, so, even though not a part of the atomic bomb project, its completion went unannounced. The new betatron produces X-rays far more powerful than any previously attained, capable of penetrating a thickness of metal considerably greater than will 2,000,000-volt rays, as well as still other interesting forms of radiation. It also gives greater depth doses of X-ray ionization in body tissue. Creation of matter from energy—reverse of the process in the atomic bomb—can be accomplished with radiation from the new atom smasher. An ordinary half dollar can be made to give off rays like those of radium by a few minutes of exposure to the intense X-ray stream from the betatron, with the silver transmuted to cadmium and to palladium and the copper of the coin's alloy transmuted to nickel. Within an hour or so the electron emission is practically completed. Although the changes involve huge numbers of atoms, they are exceedingly small in proportion to all the atoms in the coin, and no chemical test would detect the cadmium, palladium or nickel so produced. The composition of the coin is not perceptibly altered. The betatron is housed in a special building, with three-foot walls of concrete. Control is necessarily remote, from a neighboring room.

What of the Future?—Forty-five years ago the first industrial research laboratory in the United States was created, at Schenectady, N.Y. Fundamental research before then had been an assignment for the colleges. In 1914 a large laboratory—a showpiece because of its facilities—was built for the Schenectady scientists, and in 1922 another large building was erected. Now plans have been completed for a new, even larger research laboratory, to be located on a 200-acre river bluff site beyond the city limits. The building will have 200,000 square feet of laboratory working space, in addition to an auditorium, library, conference and other rooms. The cost has been estimated at $8,000,000. It will be here that a staff of 800 will devote their efforts to a very much expanded program for the postwar years, out of which will come added fundamental knowledge, new and better processes and products—and a better peacetime world.

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Note: The foregoing paragraphs were condensed from advance sheets of Mr. Guy Bartlett's excellent article on "Electrical and Allied Developments in 1945" which will appear in full in the January 1946 issue of the *General Electric Review*, and to which the reader is referred for more complete information on the various topics referred to in this abstract.—Editor.

ELECTRONICS. Since hostilities ceased in the middle of 1945, the bars of military security have been lowered and some of the fascinating stories of the wartime applications of electronics have been told. To the electronics industry, the end of the war meant not only conversion to peacetime radio production but also the application of new techniques and equipment developed during the war-accelerated research to peacetime use. While attention has been focused on radar, radio, and communications, other uses were found during the year for the romantic electronic tube that, although not widely publicized, further advanced the art in industry. Such progress, in one year alone, shows many fields and industries that have benefited by use of electronic equipment: to speed up manufacturing processes, provide exact automatic control, and precise measurement of many factors that have heretofore been almost impossible to determine.

Food Defroster.—An electronic defroster will thaw frozen foods almost instantly while preserving their taste, texture and nutritive quality. The new defrosting method uses an oven in which the floor and ceiling are insulated metal

plates or electrodes that are connected to a high-frequency generator. Frozen food is placed between these plates and is subject to dielectric heating which reaches the core of the frozen substance as well as its surfaces for uniform defrosting. Frozen raspberries, one of the most highly perishable foods, are defrosted in just 11 seconds of elapsed time.

Flaw Detector.—In one New England plant, invisible flaws and inclusions in brass bar stock were causing tool breakage losses amounting to over $2,000 per week. The problem was solved by installing an electronic flaw detector to inspect all stock before machining. This device detects flaws as short as $\frac{1}{16}$-inch, many of which are not even noticeable at the surface. In the first six weeks of electronic inspection, not a single tool was broken, tool life was considerably increased, and over-all production increased 60 per cent. The flaw detector consists of an electron-tube oscillator that supplies high-frequency alternating current to a detector coil through which the bar stock is passed at rates as high as 80 feet per minute. If a flaw is present, a sensitive electron-tube indicator circuit signals the operator and actuates relays that stop the machine which pulls the bars through the coil. The detector works equally well on both ferrous and non-ferrous metals and on welded or seamless tubing.

Feed for Ore Crusher.—Two different types of electronic control units are being used in the mining industry to keep ore crushers operating automatically and continually at the peak load corresponding to maximum efficiency. In one type, a microphone is positioned alongside the crusher, and connected to an amplifier and relay combination that controls the conveyor feeding ore into the machine. When the noise level drops to a point indicating that the crusher is running too nearly empty, the electronic ear detects this and calls for ore to be fed in.

In the other type, an electronic eye is used to monitor the amount of electric power drawn by the electric motor which drives the crusher. This power consumption is high when the crusher is fully loaded, and drops as the machine empties. A light source and phototube are mounted over a wattmeter in such a way that the meter pointer interrupts the light beam when the power drops. The phototube feeds an amplifier-relay combination controlling the ore feed mechanism, as before.

Casting of Metals.—In the manufacture of metal electrodes for vacuum tubes and X-ray tubes at Machlett Laboratories, purified copper rod is placed over a mold in a graphite crucible and the whole enclosed within a double-walled quartz-silicon tube. A high vacuum is maintained in the tube. A coil surrounding the quartz tube connects to an induction-heating electronic oscillator. When the oscillator is turned on, the copper melts and flows into the mold. Cooling is precisely controlled by adjusting the position of the heating coil so that crystals form longitudinally for maximum heat transfer under operating conditions. Dimensions of the casting can be held to about 1/10,000 of an inch. No gases can be occluded in the metal of the casting, nor can oxides form.

Centrifugal casting of intricate steel parts produces accurate castings requiring no machining, for high-carbon steels, stainless steel, or almost any other metal desired. One of the major problems, however, has been that of getting the patterns out of the sand mold without dislodging sand and thereby destroying the fine details of the casting. In a recently developed electronic method, a heavy sheet-metal cylinder serves to enclose the molding sand and a polystyrene pattern is used instead of wood. The styrene is melted out by induction electronic heating applied to the metal cylinder, after which the molten metal is injected into the cavity by centrifugal force. A slow rate of heat of the styrene pattern is required at the start to prevent excessive moisture and alcohol in the sand mix from exploding the mold. The ideal heating process seems to be four one-minute cycles separated by one-minute intervals. The method formerly used required from 1¼ to 1½ hours to melt out the styrene.

Seals Metal to Glass.—The metal contact that makes electrical connection to the coating inside the bulb wall in several types of cathode-ray tubes is sealed into the glass by electronic heating. The technique consists of placing the bulb on a fixture that holds a small chrome-iron cup against the inside wall. The cup is placed in the field of a one-turn coil supplied with radio-frequency power form an electronic generator and heated until it drops through the glass, leaving a hole. The contact is then placed in the hole and likewise heated until the surrounding glass flows and seals to the metal. Annealing of the glass removes strains set up during the operation. With the new technique, the whole process takes about one minute, half the time required by the gas-flame method formerly employed.

Phototube in Foundry.—A single operator working from a remote station controls the pouring of several ladles in a foundry simultaneously with the aid of a photoelectric control that automatically tips the pouring ladle back when the mold is filled. Hazards such as heat and splashes of molten iron encountered in hand pouring are completely eliminated and several molds are now poured in less time than was needed to pour one by the former method. As each of the group of empty molds moves into position before a ladle, a photoelectric control mounted directly above watches the riser opening through a viewing tube. When the molds are in place, the operator, through pushbutton control of a hydraulic mechanism, tips the ladles of molten iron and the whitehot metal flows into the molds. As it reaches the riser of each mold, the brilliant light thrown off signals the phototube that the mold is full. The electronic unit causes the ladle to drop back and the pouring operation automatically stops.

Hardening Sheep Gut.—One trouble surgeons have had with sheep's gut is that after the wound is sewed up the gut absorbs moisture and stretches. A roll of 1,000 feet of gut was submitted to electronic high-frequency heating at a temperature of 300 degrees Fahrenheit. This case-hardens the gut, making it relatively impervious to moisture, and gives it better slipping qualities. Conventional ovens used for the process require an eight-hour bake. The job was done by high-frequency equipment in six minutes.

Precipitation of Ore.—A new electronic ore separator has successfully refined ores of such metals as tin, iron and gold. Most promising results have been attained with low-grade ore samples from a recently developed tin deposit in a southern state. The operating principle is much like that of the Westinghouse Precipitron that has been used for many years to remove smoke, dust and liquid particles from air. By spraying elec-

trical charges on this ore, which contained only 1½ per cent tin, the metal was separated from rock and sand, concentrating it into an ore containing approximately 70 per cent tin—suitable for melting.

The ore is ground to the fineness of sand, dried, and then poured into a trough at the top of the separator. The particles of sand, rock and tin trickle onto a rotating metal drum, where they receive high-voltage electrical charges from a series of fine wires a short distance from the drum's surface. Since the tin particles are good conductors of electricity, the electrical charges seep through them and into the metal drum. The tin particles thus lose their charges before the drum has made more than one-half turn and fall off the drum. The nonconducting sand and rock particles retain their charges and cling to the drum until pulled off—during the second half revolution—by a series of oppositely charged wires. The electrostatic separator can sort mixtures of any two materials provided one component is a conductor of electricity and the other such a poor conductor that it is in effect an insulator.

Gaging Piston Rings.—Automatic inspection of the trueness of periphery and the width of gap of a specific size of piston ring is being done by electronic means. Inspection is much faster than present hand-checking methods and the production rate is determined by the speed at which the rings are presented to the gage. The inspection cycle per piece is less than five seconds. The piston ring to be checked is inserted inside a master ring which is placed on the instrument table and rotated by a power-driven roller. The gaging functions are performed by scanning beams of light directed onto phototubes which energize electronic circuits to illuminate three signal lights. As the ring revolves, one beam of light is projected on the periphery of the piston ring. A clearance between it and the master ring will result from any out-of-round condition of the piston ring and permit a portion of the lightbeam to fall on the phototube. A red rejection signal flashes should excessive light indicate that the piston ring is out-of-round beyond an acceptable point. A green signal flashes at the end of one complete revolution if the width of gap is within tolerance. Another beam of light actuates a yellow signal should the gap be undersize. A third beam of light energizes another circuit to illuminate the red rejection signal should the width of gap be oversize.

Rubber Curing.—An electronic rubber curing process that is as much as 17 times faster than the conventional steam methods is being used extensively at the Firestone plant in Akron, Ohio. Many of the company's rubber products are being cured or vulcanized by means of electronic heating. Because electronic heat is more uniform and more easily controlled, a better product is obtained, according to company officials. This process is expected to save thousands of man-hours and increase the output of materials 50 to 80 per cent. The product to be heated is placed between two metal plates that are supplied high-frequency A-C power by an electronic generator.

Crack Detector.—A photoelectric crack detector for use in the inspection of glass bottles and jars inspects units as they pass on a rotary turntable, automatically singling out and rejecting those that contain minute cracks or surface irregularities. Such flaws might prevent airtight sealing and result in spoilage of food packed in such jars. Two out of every hundred containers with flaws escape detection by human inspectors. The electronic instrument inspects bottles and jars as they come from the bottle-making machines and exceeds human inspectors in both speed and accuracy. The containers automatically move in front of a sensitive photoelectric cell and are whirled rapidly while a light is directed on the part to be inspected. The photocell is not activated by a steady light, and light reflected by a perfect glass produces no effect. When a glass with even slight imperfections on the sealing edge passes, the light beam flickers and this quick change activates the cell and the defective jar or bottle is rejected.

Electronic Joy Stick.—A new electronic control stick is used on heavy four-engine bombers, including the B-29 Superfortress. With it, pilots fly large aircraft with the ease and accuracy of a small plane. Called the "Formation Stick," it consists of a pistol-grip lever about ten inches long mounted with an arm rest beside the pilot. It moves in all directions just like the "joy" stick of pursuit planes. Through electronic amplification and the servo motors of the control surfaces, the stick moves the airplane in the same direction and in the same proportion as the stick itself is moved. It was designed originally for the relief of pilots who had to fly long distances before hitting their targets.

Phototubes for Railroads.—The door of the Diesel locomotive shop of the Erie Railroad is opened by the beam from the headlight of an approaching locomotive while it is still some distance away. The lightbeam hits photoelectric tubes that actuate the door-opening mechanism. This permits the locomotive to enter the shop without a preliminary stop. A sun visor over each phototube prevents the sun from activating it.

The sand for the sand boxes of these 5,400-hp four-unit Diesel freight locomotives is dried by steam coils over a drum, into which the sand flows by gravity as it dries. A pipe in the side of this drum is so shaped that it permits sand to spill over when the drum is full. Through these windows in the pipe a beam of light passes to a phototube. When the drum is empty, the windows are again clear and the light beam reaches the phototube. This turns off the compressed air, reopens the inlet to the drum, and allows it to fill again, ready for the next operation. This mechanism has proven more dependable than any previous springs, switches, or other mechanical action.

Liquid Level Indicator.—An electronic gas gage developed for bombing planes may find application in a large number of manufacturing operations, in refineries, large storage vats, and even to measure the moisture content of grains and other materials. The gas tanks of the airplane contain capacitance units which connect to an electronic amplifier. Each capacitance unit consists of a piece of tubing which contains two smaller pipes inside to form the elements of an electrical capacitor. Gasoline flows freely inside the tubing and between the two inside pipes. The electrical capacitance of the gasoline changes with the height of the liquid within the tank unit and is measured electronically by the amplifier. This in turn actuates an indicating dial on the plane's instrument panel to show the contents of the tank in gallons.

Thickness Gage.—Designed for petroleum operations but having other applications, an electronic instrument makes it possible to gage the thickness of the walls of oil piping, refinery

towers, and other structures subject to progressive corrosion from the outside, without dismantling them or taking them out of operation. The accuracy is said to be within plus or minus 3 per cent. The instrument consists of a cylindrical gaging head a couple of inches in diameter and somewhat over a foot in length, and a control box which contains electronic equipment. The head houses 1 milligram of radium in the form of a commercially available salt, a specially developed radiation detector of the Geiger-Mueller type, a shield between the radium and the detector, and a preamplifier to magnify the electric impulses of the detector sufficiently to carry them through a cable to the control box located some distance away.

The head is attached by permanent magnets or other clamping means to the outside of a pipe, tank, or ship plate. Gamma radiation from the radium goes through the wall and from the atoms in the wall to the detector in proportion to the wall thickness. The amount of reflection is indicated on the dial of a microammeter on the face of the control box. Since the atoms of different materials—steel, aluminum, plastic—give different degrees of reflection, the actual thickness is obtained by checking the dial reading with charts supplied with the instrument. Determinations of liquid levels in completely closed containers and even the specific gravities of the liquids themselves can be also made.

Electronic Sorting.—Balls for bearings in aircraft instruments are sorted by a new automatic ball gage. Four of the instruments served by one operator are said to sort more balls more accurately than 32 skilled operators using conventional measuring equipment. Commercial balls, which have already been graded to a tolerance of 1/20,000 in., are fed into a hopper from which they fall into tumblers, having been divided into matching groups five times more accurate. As many as ten size selections are made by the electronic equipment. Each group is separated from succeeding groups by only 10-millionths of an inch.

X-ray Snapshots.—High-speed X-ray equipment has been developed that has sufficient power to take millionth-of-a-second X-ray snapshots. One use is for studying the motion and behavior of a bullet inside a gun barrel. No other means is available for taking a picture of a bullet as it passes down the bore of the gun. Previous methods of determining the location of the bullet at any instant in the gun barrel, such as by strain gauges, have proved to be inaccurate.

The high-speed X-ray equipment has been used to observe the realignment of component parts inside the bullet when it is fired. A stationary X-ray picture is taken of the bullet in question. The bullet is then fired and a high-speed X-ray picture is taken of this same bullet in flight. A comparison of the two then reveals any changes in the shape of the bullet.

High-speed radiography has also been used to study what happens to a bullet when it strikes a piece of armor, and also what happens to the armor during penetration. Ordinary photographic methods, including high-speed photography, are handicapped because the actual penetration is obscured by luminous fragments thrown back at the time of impact.

High-speed X-ray pictures have been taken of armor-piercing bullets during the actual penetration. Two pictures were taken in sequence of a .30-caliber armor-piercing bullet penetrating a small two-by-two-inch piece of ½-inch thick armor. The first was taken when the core of the bullet had penetrated ⅝ inch into the yielding armor plate. The jacket, which cannot penetrate the armor, had telescoped forward on itself and exposed the core. The second high-speed X-ray picture was taken of this same bullet approximately 20 microseconds later. The core of the bullet had penetrated the armor and its tip was projecting through the back. Part of the armor pushed out by the penetration could be seen.

Induction Heating.—Many brazing and soldering operations have been improved by electronic induction heating. The main advantages are that the heat acts quickly, can be confined to a small area, and close control is possible. Joints are free of oxidation, heating costs are reduced and semi-skilled operators can be employed. In one plant, a brazing operation that originally took a highly-skilled operator four minutes with a gas torch could be done by unskilled women operators in 40 seconds using induction heating equipment. Inspection of the joints became unnecessary because of the uniformity provided by the electronic method.

Hollow propeller blades for airplanes require a fillet of copper or copper alloy in the leading and trailing edges. Welding on the outside edge is not sufficient to hold the two pieces together and is not possible along the inside edge. In electronic brazing, beads of brazing material are laid along the inner edge and the propeller is moved edgewise through a coil to fuse the beads and bind the edges together. The same job could be done with a torch but would take a longer time and require more highly skilled operators. Greater warpage of the blades would also result.

Oil-well drill bits are toughened by a layer of tungsten carbide deposited on the teeth under high heat. This was done with a gas torch by an operator who slowly and laboriously applied the carbide to each of the 20 teeth, one at a time. The whole bit can now be carbided in a few seconds by locating the tungsten carbide in position on the teeth, then placing the bit inside the coil of an electronic unit that heats the 20 teeth all at once. Unskilled operators do the work on semi-automatic equipment.

Soldering is a high-speed production process with electronic heating. One terminal connector used in fighter planes contains 30 wire connections that took 15 minutes when soldered one at a time with a hand iron. The entire job took only 15 seconds with electronic heating.

In assembling quartz crystal units for radio equipment, gas soldering often caused overheating and warping or cracking of crystals. With induction heating, this danger is entirely eliminated and six crystal units are soldered simultaneously by electronic means in three seconds. Heat is produced only where it is needed at the joint area, so fast that no harmful heat is conducted to the crystal.

Cost of electronic heating is high when compared with that of steam, arc, gas and other methods. Because of this, general use of electronic heat as a substitute for conventional methods in plants is highly improbable. Electronic heating is a specialized technique that is economical when it does a better job, a faster job or a job that can not even be done by conventional heating equipment.

Finds Break in Wire.—The guesswork usually involved in locating broken wires under the insulation of extension cords and those used on electrical appliances is eliminated when an elec-

tronic tester is used. In the unit, one electronic tube is connected as a self-excited oscillator operating on a frequency of about 400 cycles. The output of this oscillator is applied to the cord. A small amount of the signal energy is picked off the cord by a metal ring through which the cord is passed. Fed to a high-gain amplifier with more vacuum tubes, the signal amplitude is increased sufficiently to operate the output meter. When a break in the conductor passes through the ring, a sudden change in the meter deflection occurs and the broken spot can be quickly and accurately ascertained. Thus, the necessity of cutting the cord in more than one place to locate the break is eliminated.

Sorting Small Parts.—Much greater speed in the sorting and inspection of tiny contact assemblies has been made possible through the development of an electronic sorting table which routes the assemblies into three different channels depending on whether they are too high, too low, or within the required tolerances. Hand sorting was formerly used and each contact assembly was checked with a needle micrometer to determine whether it was oversize, undersize, or within the tolerances.

With the specially designed sorting table, each assembly is fed onto a 45-degree slide. About halfway down the slide, the assembly comes to a contact point located at preset height. If the assembly touches the point, it is oversize, and the contact made closes the grid circuit of a vacuum tube, which in turn energizes an electromagnetic relay. A solenoid is next energized, sending the assembly down a chute into a container for oversize parts. A short distance beyond the first point, a second contact point is set at standard height less tolerance. Since oversize assemblies have already been eliminated at the first contact point, parts touching the second point are within acceptable limits and go down another chute. Undersize assemblies do not touch either point and slide undisturbed to a third tray.

Case-Hardening Bearing Pins.—High-speed electronic heating on a production line has been established for case-hardening finished bearing pins to a depth of 0.025 inch. The pins are fed automatically through a glass tube and quenched with water as they leave the heating coil at a rate of 75 pins per minute. The r-f generator operates at a frequency of 5 megacycles and heats the surface of each pin above its critical temperature in less than one second. At this speed, the heat cannot penetrate into the core and only a thin surface layer undergoes change in physical state. The central portion of the pins retains original toughness and strength.

The factory application of this process involves the following equipment: the hopper from which the unhardened parts are fed into the glass tube, the heating coil, an electronic-induction heating unit, a connection providing a continuous flow of water for quenching, and a work table with suitable containers for hardened pins as they are ejected from the heating fixture. The metal was chromium molybdenum steel NE–9442 and the surface hardness developed was Rockwell C 60—about file-hardness. The pins were finish ground prior to heat treating, and, after the hardening process, there was no scale or warpage.

Oil Refining Indicator.—In modern oil refineries, accurate boiling points of the various vapors, to be separated in fractionation, must be predetermined in the laboratory. An electronic instrument for this purpose consists of a continuous-balance pyrometer which is mechanically connected to a conventional recording potentiometer. A special high-sensitivity fine wire thermocouple, consisting of six individual couples spaced about one-half inch apart, is located in the reflux zone of the fractionating column. The electromotive forces produced by these thermocouples are amplified by electronic tubes and recorded continuously by pen on a time-temperature strip chart. The electronic recorder and a special Podbielniak fractionating column make possible rapid and accurate separation of compounds whose boiling points are only one and one half degrees apart, a feat which cannot be accomplished by the older type of apparatus. The new development considerably reduces distilling time, with increased accuracy, and opens up a new field in fractional distillations. See also ELECTRICAL AND ALLIED DEVELOPMENTS.

KEITH HENNEY,
Editor, Electronics.

ELKS, Benevolent and Protective Order of. A charitable, fraternal and patriotic order founded in New York in 1868. Membership is limited to white, male citizens of the United States, 21 years old or over. There are approximately 1,400 lodges in the order with a combined membership of 750,000. The order maintains at Bedford, Va., a home for aged and indigent members; and in Chicago, a memorial building dedicated to members who served in the First World War. An Elks National Foundation Fund, administered by 7 trustees, is wholly devoted to charitable and educational purposes—all operating costs being borne by the Grand Lodge. In 1945 emphasis was placed by the order on war work—recruiting, fraternal centers for service men, gifts for service men, and purchase of war bonds. The order has a rehabilitation fund for aiding returned veterans, aids crippled children and tubercular patients, grants scholarships, and generally assists the needy. It publishes *The Elks Magazine*. Only an emergency session was held in 1945 in compliance with government regulations.

Officers, July 30, 1945: Wade H. Kepner, Wheeling, W. Va., grand exalted ruler; J. E. Masters, grand secretary. Headquarters: Elks National Memorial Building, 2750 Lake View Avenue, Chicago 14, Ill.

J. E. MASTERS,
Grand Secretary, B. P. O. E.

ELLES, SIR Hugh Jamieson, British Army officer: b. April 27, 1880; d. London, England, July 11, 1945. Appointed commander of the British Tank Corps in September 1916, Gen. Sir Hugh Elles is best known for his work in the development and justification of the tank during the First World War.

Educated at Clifton College and the Royal Military Academy at Woolwich, Sir Hugh took part in the South African War from 1901 to 1902. In January 1916, Gen. Haig, commander in chief of the British forces in France, sent him back to England from the western front to report on the progress in the manufacture and capabilities of the tank as a new engine in warfare. On Sept. 15, 1916, Sir Hugh was at the Fourth Army front during the Battle of the Somme when tanks were used for the first time. Late the next year, he led the victorious attack of 350 tanks in the Battle of Cambrai. He received the Distinguished Service Order in 1916 and was knighted in 1919. In 1934 he was appointed master general of ordnance, fourth military member of the Army

Council, and colonel commandant of the Royal Tank Regiment. He became general in 1938 and retired the same year. From 1939 he served as regional commissioner of South West England.

ELLICE ISLANDS. See WESTERN PACIFIC ISLANDS, BRITISH.

EMIGRATION. See IMMIGRATION, EMIGRATION AND NATURALIZATION.

EMPLOYMENT. See LABOR CONDITIONS IN THE UNITED STATES.

ENGLAND. See GREAT BRITAIN.

ENTOMOLOGY. See AGRICULTURAL RESEARCH ADMINISTRATION.

ERITREA, ĕr-ê-trā'ä. See ITALIAN EAST AFRICA.

ESTONIA. A Baltic Republic, bounded on the west by the Baltic Sea, on the east by Lake Peipus and Soviet Russia proper, and on the south by Latvia. It has an area of about 18,353 square miles, including the islands of Dagö (q.v.), Ösel (Saaremaa), and Moon in the Baltic Sea, and a population (1940 estimate) of 1,120,000.

From the early part of the 16th century until 1721 the country belonged to Sweden. In that year it became a part of the Russian Empire. In 1918, after the outbreak of the revolution, Estonia gained her independence and was recognized by Soviet Russia in 1920 and by the United States in 1922. A democratic regime was established which lasted until 1934 when, stimulated by the example of Hitler in Germany, Konstantin Päts staged a putsch, suspended the Diet, and established a dictatorship which remained in power until 1940, in spite of the fact that a democratic constitution was formulated (but not applied) in 1938. In 1939 the dictatorship collapsed under pressure brought to bear by Soviet Russia, and following a national referendum held throughout Estonia under Soviet auspices July 14 and 15, 1940, the country was incorporated into the USSR. Her status as the Estonian Soviet Socialist Republic, however, was not recognized by either Britain or the United States. When Germany declared war on Soviet Russia, Estonia was invaded by the Nazis in the summer of 1941, Tallinn, the capital (pop. 145,000) falling to Axis troops on August 29.

Religion and Education.—No state religion has existed in Estonia under any of its recent regimes. Approximately five sixths of the population are estimated to be Lutherans, the remainder adhering to the Greek Orthodox, Roman Catholic, and other faiths. Education, similarly, has been free and compulsory. There were 1,224 elementary schools in 1938; 58 middle schools; 39 technical and handicraft schools; 30 agricultural schools; 13 domestic economy schools; 14 commercial schools; and 2 teachers' training schools. There was one institution for higher learning, the Tartu University, with 3,219 students in 1938; and a Polytechnical Institute in Tallinn having 513 students.

Finance.—In 1941 the budget was fixed at 580,166,000 rubles. (Equal at par to $.515 in U.S. money.)

Production.—Once a thriving industrial nation, Estonia, on severing its ties with Russia in 1920, decayed industrially and became largely an agricultural nation. Farming and dairying were the chief occupations of 70 per cent of the population in 1938. The total area of approximately 10,789,959 acres consisted at that time of 2,314,141 acres devoted to forests; 2,683,259 acres of fields; 2,186,054 acres of meadows; 1,774,697 acres of pastures; and 1,502,368 untillable acres including a peat bog of 329,440 acres. Current, or even recent, statistics are unavailable on production; but the chief crops were potatoes, rye, oats, barley, and wheat. There were 277 dairy factories in 1938, butter being the chief article of export. The most important industries included textiles, paper, oil shale, cement, timber, flax, and leather. Industrialization of the country received marked impetus in 1940 under the new regime then instituted. Imports in 1939 amounted to 101,351,000 Estonian kroons (equal at par to $.268 in U.S. money), and exports to 118,217,000 kroons.

Principal Events.—Freed from German occupation in the autumn of 1944, Estonia settled down in 1945 to rehabilitate its damaged homes, industries, and communications. The organs of Soviet rule were reconstituted, over 20,000 persons being selected as rural representatives, and to act on the executive committees and their permanent commissions. Land reform measures were reinstituted, former landless agricultural laborers and poor peasants again becoming landholders. Substantial assistance was given these farmers in the shape of implements, building materials, cows, horses, and loans of money and seed. Machine and tractor stations, and also machinery and horse-hiring stations, were restored, and these factors contributed to the successful completion of the country's sowing plan in the spring. Agricultural co-operative societies with a network of food processing plants, dairies, and slaughterhouses were revived. Over 40 per cent of Estonia's industrial plants had been saved from destruction at the hands of the retreating Germans by the swiftness of the Red Army's advance; and the industrial plan for 1945 provided for raising industrial production to 70 per cent of the 1941 level by the end of the year. A three-year plan for industry was adopted, which involved the employment of 40,000 underground workers in mining shale, to be transformed into liquid fuel and for the production of gas. Approximately 80 per cent of Estonia's shale-oil production had been restored early in the year, and a new shale-fuel plant started operation in June. Several superphosphate and carbon-dioxide plants were reopened, and also a number of electric power stations. The large cotton factory at Arsenholm was retooled. About 20,000 spindles went into operation at the restored Krenholm textile plant during the first quarter of the year; the manufacture of yarn was resumed in Tallinn; and a cloth factory began operation in Sindi. The Union Tannery and Shoe Combine in Tallinn, which produced 1,000 pairs of shoes monthly in 1941, rapidly restored its production volume, and in the same city the Krasnaya Zarya plant, which before the war manufactured an average of more than 1,000,000 pairs of women's stockings a year, steadily increased its production of textiles and hosiery. The Stakhanov system, introduced from Soviet Russia, was reported to have increased production markedly in many industries, and youth brigades were formed to work in factories, fields, and mines. Academic life was renewed, there being about 120,000 students, almost as many as before the war. Technical and vocational schools reopened; the ancient university in Tartu and the Polytechnical Institute in Tallinn functioned again. Publication of Estonian literature was resumed on a wide scale.

ETHIOPIA. A landlocked independent country of East Africa, having an area of about 350,000

square miles and a population estimated at 9,500,000. Subjugated by the Italians in 1936, it was reconquered in 1941 by British troops and Ethiopian irregulars. The capital is Addis Ababa (pop. 150,000), and other towns include Dire Dawa (50,000) and Harar (30,000). The ruler is Haile Selassie I (born July 17, 1891), who was crowned king (Oct. 7, 1928) and then emperor (Nov. 2, 1930); he was an exile in Great Britain during Italian occupation of his country. After the emperor's restoration, the British Treasury provided regular financial assistance to the Ethiopian government and paid for the training of a new Ethiopian army; and British officials were attached to the administrative departments, police forces, judiciary, and scholastic system. Revenue in 1943–44 was £2,345,192, and expenditures amounted to £3,128,214. A two-year agreement concluded in 1944 renewed permission for tribes of neighboring British Somaliland to graze their cattle for six months each year in "reserved areas" of Ethiopia. While the majority of the inhabitants are Christians of the Coptic faith, Moslems predominate in some of the provinces. The government and missionary bodies maintain elementary schools; a secondary school was established at Addis Ababa in 1944 to train teachers and civil administrators.

Agriculture and the raising of cattle, sheep, and goats are the chief industries. Cotton, sugar cane, dates, and millet are among the chief agricultural products, and barley and wheat are also grown. There is a considerable trade in hides and skins. Industries established since expulsion of the Italians include the tapping of wild rubber, cotton textile weaving, and the manufacture of rope and sacks. Iron, marble, mica, rock salt, platinum, and gold are among the minerals produced; other mineral deposits include coal, copper, sulphur, and potash salts. Imports in 1943–44 amounted to £3,910,090 and exports to £2,184,108. The Italian lira no longer circulates. Until a new Ethiopian currency becomes available, the Maria Theresa dollar and the coinage of British East Africa are legal tender.

A railroad runs from Djibouti, French Somaliland, to Addis Ababa, a distance of 487 miles. During the Italian tenure, numerous good highways were constructed in Ethiopia, the aggregate length being 4,340 miles; Addis Ababa and Gondar were linked by road with Asmara, Eritrea; and from Assab, a secondary port in Eritrea, a road ran to Dessie, and thence to Magdala. Internal telecommunications are mainly wireless. There are numerous airfields, some built by the Italians and others, during the war, by the British.

Principal Events.—In December 1944, Great Britain surrendered her exclusive rights in Ethiopia, the British minister no longer taking precedence at the emperor's court and Haile Selassie becoming free to choose foreign advisers from any country he might desire. Britain also withdrew her military forces from the country except in certain border areas and relinquished her exclusive air rights, all Allied air forces securing the right of transit and landing. The British also ceased to operate the railroad, which was taken over by the Ethiopians as far as their frontier with French Somaliland. The United States furnished aid to Ethiopia under the lend-lease provisions, and in 1944 despatched a technical mission to the country. During February 1945, Emperor Haile Selassie conferred in Cairo with Prime Minister Winston Churchill and Foreign Secretary Anthony Eden, and aboard an American warship near the Suez Canal with President Roosevelt. John K. Caldwell, United States minister to Addis Ababa, formally restored to the emperor in July 1945 many of his valuables stolen by the Italians and subsequently recovered in northern Italy after the war by American forces; the 350 treasured articles, of a total weight of 800 pounds, included royal robes and a large quantity of silverware. Ethiopia sent a delegation to the United Nations Conference on International Organization, at San Francisco, and became one of the signatories of the charter of the United Nations. Direct radiotelegraphic service with the United States was established on May 17, 1945, when messages of friendship were exchanged between the heads of the two countries. Cordial relations with France were also re-established in September, when agreement was reached on the exact demarcation of the frontier between Ethiopia and French Somaliland; the Italians, during their occupation of Ethiopia, had built roads on what the French had claimed was their territory.

Of far greater portent, however, was the announcement on Sept. 7, 1945, that the Ethiopian government had given to the Sinclair Oil Corporation a 50-year concession for the development of the country's petroleum resources. The Standard-Vacuum Oil Company (owned jointly by the Standard Oil Company of New Jersey and the Socony-Vacuum Oil Company) had obtained a concession in 1935 but canceled it at the request of the State Department when Italian invasion of the country was imminent. The Ethiopian government is to receive from the Sinclair Oil Company royalty payments at a rate to be increased five years after production has commenced; the basis for payment may be revised after 15 years. The company, for its part, is to promote the general welfare of Ethiopia, establishing "a trade school or schools, a hospital or hospitals, clinics, sanitary facilities, research organizations, and other public institutions for the enhancement, education, health, culture, and prosperity of the people of the country." The agreement further stipulated that the company shall provide sums annually over a period of 10 years for the education and training of Ethiopian subjects in the United States. In the event that oil in commercial quantities can be located, Ethiopia will enjoy an unprecedented opportunity for advancement.

After the sufferings which his country had endured at the hands of the Italians, and on historical grounds, Haile Selassie deeply resented the fact that he was twice denied permission for representation of his country at the meeting of the Council of Foreign Ministers in London during September 1945, when a peace treaty with Italy came up for discussion. He had to be content with submission of a memorandum, in which he put forward claims to Italian Somaliland and Eritrea; he declared that these lands had been part of Ethiopia since before the Christian era, only to be stolen by Italy during the 19th century. However, both Egypt and Russia also sought to acquire Eritrea, and the United States thought that Italy should administer all her former colonies on behalf of the United Nations, while the course which would be favored by Great Britain, who had conquered the colonies, had still to be learned. Transfer to landlocked Ethiopia of Assab, a port in southern Eritrea, could certainly be justified on economic grounds since Djibouti, natural outlet from the country, remained in French hands; but it was doubtful whether Haile Selassie would obtain general assent for annexation of other areas to his own backward domains.

EUROPE. See articles on FRANCE, GERMANY, USSR, etc.

EVANS, Caradoc, Welsh novelist, playwright, and journalist: b. Pantycroy, Llandyssul, Wales, 1883?; d. Aberystwyth, Wales, Jan. 11, 1945. Caradoc Evans' literary career had been the center of continuous controversy: his bitter criticism of the Welsh, and Wales, outraged many of his fellow countrymen, and he was stoned and burned in effigy, while his books were denounced from public platforms and pulpits throughout Wales.

Apprenticed at the age of 13 to a draper at Carmarthen, Mr. Evans worked about 12 years in various London and provincial draper shops. As he was determined to become a journalist, he attended evening classes at the Working Man's College in London, but his progress in English was slow. He eventually decided to learn English from the Bible, and to write Welsh stories in biblical English. He established his reputation with *My People: Stories of the Peasantry of West Wales,* published in 1915. In later years, Mr. Evans did editorial work on *Everybody's Weekly, Harmsworth's History of the World,* and *The World's Great Books,* and was acting editor of *T. P.'s Weekly* and *Cassell's Weekly.*

Among Mr. Evans' other works are: novels, *Nothing to Pay* (1930), *Wasps* (1934), and *Morgan Bible* (1943); short stories, *Capel Sion* (1916), *My Neighbors: Stories of the London Welsh* (1919), and *Pilgrims in a Foreign Land* (1942); drama, *Taffy* (1924). He married Countess Barcynska, an Englishwoman who writes popular novels under the name of Oliver Sandys.

EVANS, Edwin. See MUSIC—*Necrology.*

EXPERIMENT STATIONS. See AGRICULTURAL RESEARCH ADMINISTRATION.

EXPLOSIVES. See MINES, U. S. BUREAU OF.

EXPORT-IMPORT BANK OF WASHINGTON. Created as a banking corporation under the laws of the District of Columbia on Feb. 12, 1934 pursuant to Executive Order No. 6581 dated Feb. 2, 1934, the bank was made a permanent independent agency of the United States by the Export-Import Bank Act of 1945 (Public No. 173, 79th Congress, approved July 31, 1945). The purpose of the bank is "aiding in the financing and facilitating of exports and imports and the exchange of commodities between the United States or any of its territories or insular possessions and any foreign country or the agencies or nationals thereof."

The act of 1945 vests the management of the bank in a board of directors consisting of the Secretary of State and four full-time directors appointed by the president of the United States by and with the advice and consent of the Senate; and provision is made for an advisory board to make recommendations to the board of directors and advise on major questions of policy.

The affairs of the bank are administered by its president, Mr. Wayne C. Taylor, subject to its board of directors.

The act of 1945 also authorizes a capital stock of $1,000,000,000 and increases the limit on outstanding loans and guaranties from $700,000,000 to $3,500,000,000. By the same act the Congress repealed the limitation on loans by the bank to governments which were in default on their obligations to the United States government.

The increase in authority and lending power has permitted the bank to make loans to liberated countries to finance purchases in the United States of equipment, materials and services.

The 1945 act expresses the policy of the Congress that loans should generally be for specific purposes and offer reasonable assurance of repayment.

Statistics of Operations.—From the time of its establishment to the end of 1945, the bank had authorized loans aggregating more than $2,300,000,000, of which $1,100,000,000 were authorized in 1945. Disbursements during 1945 were approximately $80,000,000 and repayments were approximately $51,000,000. As a result, outstanding loans increased from $225,000,000 at the end of 1944 to $252,000,000 at the end of 1945.

RICHARD W. EFFLAND,
Secretary, Export-Import Bank of Washington.

EYE, Diseases of the. See OPHTHALMOLOGY.

F

FAEROE or FAROE ISLANDS. A group of 21 islands in the North Atlantic, lying between lat. 61° 25′ and 62° 25′ N. about 280 miles southeast of Iceland, with an area of 540 square miles and a population (1935) of 25,744. They have belonged to the Danish monarchy since 1380, but were temporarily placed under British protection on April 12, 1940, after the German invasion of Denmark, to prevent their being taken over by the Germans. Strömö, Osterö, Sandö, Suderö, and Vaagö are the largest members of the group. Thorshavn, in Strömö is the seat of government. The inhabitants are of Norse ancestry and speak a Norse dialect; the official language is Danish. Autonomy is granted in local affairs, and representatives are normally sent to the Danish Parliament. Lutheranism is the predominant religion. Crops include turnips, potatoes, and barley. Sheep and horses are raised. The principal industry is fishing, others being sheep farming and the manufacture of woolen goods. Chief exports are sea-fowl feathers, fish, whale oil, and sheepskins. See also DENMARK.

FALKLAND ISLANDS. A group in the South Atlantic Ocean, some 300 miles east of the Estrecho de Magallanes (Strait of Magellan), constituting a British colony. About 100 islets lie adjacent to two large islands—East Falkland (2,580 square miles) and West Falkland (2,038 square miles). The population was estimated in 1943 to amount to 2,444. The colony has five dependencies: South Georgia (1,450 square miles; permanent pop., 360); South Shetlands; South Orkneys; South Sandwich Islands; and Graham Land. Port Stanley (pop., 1,246), on East Falkland, is the capital and seaport. A governor (Sir Allan Wolsey Cardinall appointed Feb. 8, 1941) is assisted by an Executive Council of 7 members (2 of them nominated unofficials) and a Legislative

Council with a membership of 8 (4 officials and 4 nominated unofficials). Government revenue in 1943 amounted to £91,453, and expenditure was £98,307; there was no public debt. Education is free and compulsory. There are two schools at Port Stanley, one conducted by the government having 232 pupils in 1943, and the Roman Catholic community maintaining another with 20 children in attendance. The Falkland Islands Company supports full-time schools at Darwin and North Arm, and the government maintains a part-time school at San Carlos; elsewhere in outlying settlements, children are taught a few weeks annually at camp schools by traveling teachers. Sheep raising is the principal occupation of the people (mostly of Scottish descent) about 2,875,520 acres being in pasturage. Sheep numbered more than 625,000. Besides wool, sheepskins, and hides, products of the whaling industry are also exported. Total exports in 1942 were valued at £8,260, and imports, chiefly foodstuffs, textiles, fuels, and machinery, amounted to £9,870. All exports go to Great Britain, which is also the principal importer. The islands of the colony and its dependencies are served by vessels of the Falkland Islands Company, which also carry mails and passengers to Montevideo. Port Stanley is linked by telephone with other settlements on East Falkland; and the capital is also in wireless communication with Montevideo and with Grytviken, main settlement on South Georgia. A meteorological station is operated by the Argentine government on Laurie Island, South Orkneys, to report weather conditions in the Weddell Sea; cold winter in that area, it has been discovered, presages drought in the agricultural districts of Argentina three and one-half years later.

South Georgia is inhabited the year round by employes of companies engaged in the whaling industry, and they operate stations each season in the South Shetlands and the South Orkneys. Seal fishing and the garnering of guano are industries of lesser importance. In 1944 the British government dispatched an expedition to Hope Bay, Graham Land, to resume research work in the Antarctic which had been interrupted by the war.

FARM CREDIT ADMINISTRATION. In the year ended June 30, 1945, the Farm Credit Administration loaned more than a billion dollars to farmers and their co-operative associations. It kept its service geared to wartime demands but at the same time urged farmers to get in a safe financial position in order to face any postwar adjustments. Progress was made in the financial position of the institutions operating under its supervision. Seven of the federal land banks returned $67,587,609 of capital and surplus to the U. S. Treasury. The production credit corporations returned $6,700,000 of government supplied capital to the Revolving Fund. Eight of the federal land banks paid dividends to the national farm loan associations, a part of which was passed on to member-borrowers by 843 of the associations. In the year, the system served a large number of veterans and servicemen. Land bank and Commissioner loans amounting to $1,347,650 were made to veterans and servicemen buying farms. Production credit associations, since Pearl Harbor, have extended credit to veterans and servicemen totaling more than $11,500,000.

Production Credit.—The nation-wide system of 514 production credit associations made 214,883 loans for $500,305,170 to finance crop and livestock production, practically duplicating the previous year's business. More than 360,000 farmers and ranchers were members of the associations on June 30, 1945. They owned Class B voting stock with par value of $27,415,085, and Class A nonvoting stock with a par value of $3,817,139. Stock owned by members was 35.9 per cent of the total which compared with 30.6 per cent a year previous. Capital stock not owned by members is owned by the production credit corporations.

Many farmers who had borrowed in the past did not use the associations' facilities in the year because of their improved cash position. However, approximately 35,500 farmers and stockmen who had never before used the associations became members in addition to about 4,500 who had formerly been active members.

The eleven emergency crop and feed loan offices continued to make loans for crop production and feed for livestock to farmers unable to obtain credit from other sources at reasonable rates. Due to improved farm income, the demand for this type of credit declined 10.9 per cent from the previous year. Farmers obtained 81,653 loans totaling $16,748,114.

The Regional Agricultural Credit Corporation of Washington, D.C., made loans totaling $12,608,651, of which $3,386,174 was restricted area loans used to increase the production of certain essential farm commodities vital to the war effort.

The 12 federal intermediate credit banks, a vital part of the production credit system, furnish the principal source of loan funds for the production credit associations and for many privately capitalized agricultural financing institutions, discount commodity loans made by the banks for co-operatives, and make some loans directly to farmers' co-operative business associations. Funds for loans and discounts are obtained from the sale of collateral trust debentures to the investment market.

In the year, the credit banks loans to and discounts for production credit associations amounted to $657,991,903 or 75.3 per cent of the total. Loans and discounts for co-operative associations totaled $2,737,092 or 0.3 per cent; for agricultural financing institutions, other than production credit associations, $79,758,820 or 9.1 per cent; and $133,156,053 or 15.3 per cent for the 13 banks for co-operatives.

Credit for Co-operatives.—The thirteen banks for co-operatives, one in each of the FCA district offices and the Central Bank for Co-operatives, loaned $407,470,000 in the year ended June 30, 1945, compared with $471,250,498 the previous year. The total for the 1945 fiscal year included $27,585,000 in Commodity Credit Corporation loan documents purchased from co-operative associations. The decrease in loan volume was due largely to favorable agricultural conditions with many co-operatives increasing their capital and becoming debt free, and also to the lack of demand for loans for financing construction or the purchase of equipment because of wartime shortages.

On June 30, 1945, there was $151,839,000, including Commodity Credit Corporation loan documents purchased, outstanding in loans to co-operatives. Of this amount 8.3 per cent was to grain co-operatives, 13.4 per cent to co-operatives handling farm supplies, 6.5 per cent to fruit and vegetable associations, 39.4 per cent to cotton co-operatives, 16.7 per cent to wool co-operatives, 2.9 per cent to associations providing farm business services, and 8.3 per cent to dairy co-opera-

tives. The remainder went to associations handling a variety of products.

Farm Mortgage Credit.—Long-time land bank and Commissioner loans totaling $120,000,000 were closed by the 12 federal land banks operating through a nation-wide system of about 1,000 local national farm loan association offices. This money went to 27,016 farmers, compared with 21,202 farmer-borrowers the previous year, an increase of 27.4 per cent.

Favorable farm income again was reflected in the operations of the federal land banks and the Federal Farm Mortgage Corporation which handles Commissioner loans.

Farmers continued to make large repayments on their loans, many repaying their loans in full. Payments on the principal of federal land bank and Commissioner loans and loans paid in full totaled $346,000,000 or an average of $2.87 for each $1 loaned in the year.

The proportion of land bank and Commissioner loans fully current on payments of interest and principal continued to improve. On June 30, 1945, 94.7 per cent of land bank loans were current on payments compared with 93.5 per cent a year ago. Commissioner loans showed 93.0 per cent current in 1945 compared with 91.6 the previous year.

Notable progress was made in the reduction of farm real estate held by the land banks and Federal Farm Mortgage Corporation. The 12 federal land banks held 765 farms and sheriffs' certificates on June 30, 1945, compared with 2,345 a year previous. The Federal Farm Mortgage Corporation held 645 farms on June 30, 1945, compared with 1,816 a year ago.

Farmers also have put money in the future payment funds of the federal land banks and Federal Farm Mortgage Corporation which they can later use to meet installments of land bank and Commissioner loans as they come due in periods of less favorable farm income. On June 30, 1945, these funds amounted to $25,481,898. Interest on money in these funds is paid at the same rate a borrower pays on his loan.

Farm Land Situation.—Farm land prices continued to rise during the year reaching an average about 57 per cent higher than the 1935–39 levels. In some individual states and areas within states much larger increases occurred.

The Farm Credit Administration in the year continued to study the farm real estate situation and to use normal value as a basis in making loans. It co-operated with the Extension Service of the U.S. Department of Agriculture and other government agencies in sponsoring numerous land value clinics or appraisal demonstrations in various states. The demonstrations were given by federal land bank appraisers and were held on farms where the land bank method of determining normal agricultural value was explained to groups of farm leaders. E. B. REID,
Director, Information and Extension, Farm Credit Administration.

FARM INCOME. See AGRICULTURE, REVIEW OF.

FARM LABOR. The Bureau of Agricultural Economics, United States Department of Labor, announced that, with only 10,017,000 persons employed on farms on May 1, 1945, a new low for that date, the available labor supply for farm work was continuing to decline. Farm operators, the bureau asserted, would continue to rely heavily on family labor, as they had done in the past three years. May 1 saw a 74,000 increase over the same date in 1944 in the number of family workers, and a 125,000 decrease in the number of hired workers. The increase in family workers might mean, it was stated, that members of farm families who left to work in war plants were returning to the farms, and that there was a possibility that some laid-off war workers would be available for farm work later on, depending upon how rapidly reconversion got under way. Continued demand on the small supply of farm labor was expected to push farm wage rates above the record high of April 1, 1945, since wage rates for regular workers are usually set at the beginning of the season, and are not likely to be changed.

FARM MORTGAGE DEBT. The Bureau of Agricultural Economics, United States Department of Agriculture, announced in June that the farm-mortgage debt of the United States on Jan. 1, 1945, was estimated at $5,250,000,000, a decline of one fifth from the 1940 level. Along with this decline occurred a major shift in the distribution of the debt among the several lenders. On Jan. 1, 1945, the federally sponsored agencies —federal land banks, Federal Farm Mortgage Corporation, Farm Security Administration, and joint stock land banks—held about 33 per cent of the total debt as compared with 43 per cent five years earlier. Private lenders, on the other hand, held a correspondingly larger proportion of the debt at the beginning of 1945. Of the decline in the total debt of more than $1,333,000,000 between 1940 and 1945, more than 92 per cent occurred in the preceding three years. This decline of 20 per cent in the five years 1940–44 contrasts with an increase of 69 per cent during and immediately after the First World War—1915–19. In the five years, 1940–44, loans held by the federally sponsored agencies were reduced by $1,112,000,000, or 39 per cent, as compared with a decline of $1,316,000,000, or 20 per cent, for the total farm-mortgage debt. Loans held by all such agencies fell off during this period except those held by the Farm Security Administration, which increased from $38,566,000 to $178,936,000.

Loans held by the federal land banks alone decreased nearly 40 per cent, and loans held by the Federal Farm Mortgage Corporation declined more than 51 per cent. Since the enactment of the Emergency Farm Mortgage Act of 1933 the joint-stock land banks, not already in receivership, have been in liquidation. As a result, loans held by such banks have fallen from $91,726,000 on Jan. 1, 1940, to $5,455,000 on Jan. 1, 1945. On the latter date the remaining lenders held an estimated $3,529,305,000, or 67 per cent of the total farm-mortgage debt. Life insurance company loans totaled $933,723,000; insured commercial banks held $449,582,000, and "other" lenders, $2,146,000,000.

FARM POPULATION. Asserting that the farm population of the United States has dropped to the lowest point in 35 years, the Department of Agriculture, on July 4, estimated the number of persons living on farms on Jan. 1, 1945, at 25,190,000, a decline of 5,079,000, of nearly 17 per cent, since 1940. The department estimated that the farms lost 5,136,000 persons through migration or abandonment of farming operations, and 1,805,000 to the military services. These losses were offset in part by a net addition of 1,907,000 persons through excess of births over deaths. But despite the loss in farm population, the department stated that farm and food production has increased 35 per cent.

FARM SECURITY ADMINISTRATION (FSA). This agency makes loans and provides farm and home guidance to help low-income farmers earn better incomes and improve their living conditions. FSA was created Sept. 1, 1937, as an agency within the U.S. Department of Agriculture to replace the Resettlement Administration.

Started as a subsistence program in depression times, FSA gradually evolved into a plan for orderly rehabilitation of worthy but impoverished farm families with an ultimate goal of family-farm ownership. When the Second World War suddenly expanded the farmer's markets and provided employment for much of the surplus manpower among low-income farm people, Farm Security's supervised credit provided a basis for increasing food production on the family-type farm. Many small farmers were enabled to produce at nearer the full capacity of their resources of land and manpower.

Now in the reconversion period FSA is continuing its assistance to disadvantaged farmers, but an increasing portion of its work is with former servicemen and war workers who left agriculture and are returning to farm life. Many of them grew up on small, inefficiently operated farms and have limited experience in modern agricultural methods. Many do not have enough savings to cover farm and home operating expenses while the new start is made, and they lack sources of suitable credit.

Farm Security loans are made to farm families who cannot borrow on reasonable terms anywhere else. Two general types of credit are offered: (1) operating loans for livestock, equipment, feed, seed, and other farm essentials and family living needs; (2) 40-year loans to enable tenants, sharecroppers and farm laborers to buy farms under terms of the Bankhead-Jones Farm Tenant Act. Qualified veterans of the recent war are eligible for the farm-purchase loans the same as farm tenants, under terms of the Servicemen's Readjustment Act of 1944 (GI Bill of Rights). Water facilities loans for farmstead or irrigation water are made in the 17 Western States.

Credit is supplemented with individual guidance from local supervisors who help borrowers to prepare annual farm and home plans and to use improved farming and homemaking practices. Thus the families develop farming enterprises suited to their land and abilities, and learn good methods of caring for livestock and poultry, producing diversified cash crops, growing gardens and canning food for good nutrition.

Other FSA services include group medical, dental and hospital care plans, group purchasing of farm equipment and livestock, and assistance in improving tenure arrangements and in adjusting burdensome debts.

Loans to Veterans.—In the fiscal year ended June 30, 1945, rural rehabilitation loans (operating loans) were made to 2,550 veterans, and they received individual guidance in starting on land they rented or already owned. Sixty-six veterans obtained farm ownership loans; in each case careful attention was given to making sure the farm was one on which the veteran could earn an adequate living while paying his debt. In February 1945 the county FSA committees, which pass on all loan applications, were asked to act as special certifying committees in connection with the farm loan guarantees for veterans provided in the GI Bill. As of June 30 the committeemen had certified 406 veterans as eligible for guarantees of loans made by regular lending agencies for the purchase of farms or farm equipment.

Rural Rehabilitation.—Field workers in the 2,000 county offices concentrated their efforts on helping rehabilitation borrowers make fundamental adjustments and improvements in their farming so as to put their financial affairs on a sound basis for the postwar years. More attention than ever before was directed toward solving broad agricultural problems which low-income farmers often cannot overcome by individual effort alone. Appraisals of borrowers' farm and family resources were begun, providing facts from which to chart the course for general improvement of the program in the counties.

The average rehabilitation borrower cultivated more acres in the 1944 crop year than in 1943 and ended the season with more working capital, greater net worth, and a smaller debt to FSA. Borrowers' cash income from crops and livestock averaged $1,395; including the value of the food and fuel they produced for home use, the gross farm income was $1,836. Farm operating expenses averaged $810, leaving net farm income of $1,026. The families' net worth averaged $2,522 at the end of the season; the comparable figure for 1943 was $2,300.

More families applied for loans than could be aided with the $67,500,000 available in the 1945 fiscal year. Farm Security made 24,996 new loans, and 102,890 supplemental loans to families already on the program who needed further help to expand their farming. About 300,000 families were active in the program during the fiscal year. More than 78,000 made final payments on their loans.

Ownership of Family Farms.—Because of rising land prices, extreme care has been taken in the farm ownership program to avoid the dangers of inflation. Loans are made only to applicants who can find good land for sale at prices in line with earning capacity values as computed on the basis of long-time average prices for farm products. The 1,870 loans approved in 1945 averaged $5,942 compared with an average of $5,994 in 1944 and $5,721 for the period 1938–43. Some states used all funds allocated to them and could have made additional loans, while in other states some funds allocated were not used because sound buys could not be found within price limits.

Fifty million dollars is available in the 1946 fiscal year—half of it earmarked for veterans' loans. The $25,000,000 for veterans may be used without regard to the requirement of the Bankhead-Jones Farm Tenant Act that loan funds be allocated among the states in accordance with farm population and prevalence of tenancy.

Since 1937 nearly 38,000 families have bought farms through this program. Their repayment record has been good each year, but the 1945 record was the best. Eleven hundred families paid their loans in full from farm income—years before final payments were due. The active borrowers as a whole, had paid 57 per cent more on their loans, as of March 31, than the amounts required to keep them current on the 40-year payment plan.

Water Facilities.—This activity rounds out Farm Security's services in the West where adequate water supply is vitally important to the farmer. More than 1,000 individual loans, and seven loans to groups, were made in 1945, and engineering aid was given in installing or repairing many types of facilities for farmstead and irrigation water. More than 11,000 families have been assisted through this program since 1938.

FRANK HANCOCK,
Administrator, Farm Security Administration.

FASCISM. The two great concentrations of Fascist power received their knockout blow during 1945 with the defeat of Germany and Japan. Fascist Italy had already given up in 1943. Only Spain, Portugal, and Argentina were left as open advocates of the Fascist program; and as the Axis powers were nearing their collapse, Argentina was impelled to declare war on them (March 27, 1945) and to send its representatives to the San Francisco Conference, while Spain and Portugal were brought under increasing Allied surveillance. The events of 1945 revealed fascism in its developed form as a system of predatory, militaristic, monopolistic dictatorships, linked (through the Axis and it supporters in various countries) on a world scale. Hitler and his National Socialists, with their blood and race obsessions, the German General Staff, with its long-range plans for military conquest, and the monopolists of German heavy industry and the Junker landlords, with their carefully-drafted schemes of expansion, had become as one in advancing the Nazi program and in exploiting the Nazi empire. As German fascism neared its eclipse, accounts multiplied of arrangements made through neutral countries by the chief beneficiaries of nazism for saving their holdings through transfer. With the collapse, the industrialists claimed dissociation from the Hitler regime, but were shown to have been deeply involved in plans for reviving German monopolistic enterprise and for bringing on a third world war. And while the falsity of the German claim to racial superiority had been demonstrated on the battlefields, the propaganda which the Nazis had used from the beginning of their rise to power—aimed to divide the forces opposed to nazism, and especially to create mutual fear and distrust between the Western Allies and the Soviet Union—continued to circulate in Germany long after the capitulation, and to be echoed in certain sections of the Allied press.

Official investigations and the testimony of trial witnesses brought full confirmation of the Nazi practice of genocide—the scientific mass murder of the "racially inferior," and of disabled, infirm, or unwanted men, women, and children; or their systematic sterilization, or weakening through starvation, overwork, physical abuse, or unchecked disease. By thus reducing the strength of opposing groups (including their own dissentients), the Germans planned to achieve physical superiority over their opponents in the next war. In addition to their uniquely barbaric genocide policy, the most impressive testimony to the aims of the Nazis was their reduction of entire populations in the occupied countries to destitution and misery through systematic robbery or destruction of their material resources. In all commodities except those needed for war, fascism spelt scarcity and want.

In Japan a fusion between fanatical upholders of the imperial authority, the militarists, and the great monopolists (the Zaibatsu), similar to the German Fascist combination, was found to have produced similar effects. Evidence showed that the war had given the great corporations (with the aid of government bureaucrats, and with the imperial family as important investors) almost unlimited control of the Japanese economy, resulting in the absorption of many small enterprises; in private pilfering of civilian rice and clothing rations; in currency inflation; and in the general scarcity and destitution characteristic of fascism. Japan itself was only a small part of the picture of Fascist havoc in the East, which had spread terror, destruction, and wholesale robbery throughout the "Southeast Asia Co-Prosperity Sphere." At the time of Japan's collapse, the Japanese monopolists, like those of Germany, ascribing the blame for the war and the defeat to political and military fanatics, prepared to evade responsibility for their substantial part in the Fascist enterprise, and to reap new harvests. But in Japan as in Germany, official Allied plans for dealing with the continuing threat of fascism tended to take account of its monopolistic as well as its militaristic and more strictly political character. United States government officials and other observers, through their experiences with fascism in 1945, arrived at a more developed definition of its meaning. They came now to define it (in essence) as the concerted use of misleading propaganda, armed force, and scientific mass extermination of enemies and "inferior" peoples, the better to convert all human and material resources on a national and international scale into a monopoly of the few at the expense of the great majority. Official action aimed at ending the threat of fascism moved toward complete acceptance of this definition.

FASHION DESIGNING. The end of the war found American fashion designers in a very fortunate position of prestige and opportunity, but bewildered by the suddenness of events that might result in reappraisal of fashion centers. The situation in the three countries most important for fashion influence did not help to clarify the future. Paris couturiers held openings in September, the first since the end of the war in Europe. However, their difficulties were many. There was no supply of fabrics. There was no coal to run the fabric mills. Transportation, high prices, and exchange rate made it prohibitive for clients from other countries to buy in Paris. French women were on a severe clothes rationing system, with a result that, although they might pay any amount of money they might have for their clothes, their number of purchases was severely limited. On the other hand, French trade missions visited the United States, and laid elaborate plans to attract the purchasers of French fashion products when they could be freely exported again. In the meantime, GI's were purchasing perfume and other luxury accessories, bringing prosperity to the dressmaking houses which also feature cosmetics.

In London, neither dressmakers nor clients had much to do with. Coupons severely limited purchases. Manpower and material shortages curtailed production of better garments. However, under the Austerity Clothes Program sponsored by the government, English women of low income were assured of good, sturdy, inexpensive clothes. In most cases, they were designed by the best custom dressmakers for mass production. Consequently, the majority of English women had never been so well dressed. The success of this plan is likely to result in a clothing industry somewhat like that of the United States, as soon as conditions become more normal.

In the United States, opinion on many important questions was divided. There were those who felt all the government orders controlling design and manufacture of clothes should be immediately removed, to give the designer free reign. Others feared the effect of possible fashion changes on existing stocks of clothes, and those

for the winter season on order and in the process of manufacture. After numerous hearings of both sides in Washington, the removal of major restrictions was postponed, with a general impression that it would come in the late spring of 1946.

With more freedom than they had had for many years, American designers and manufacturers were confronted with a dilemma. Normal changes in fashion had been suppressed during the war years. Who would advance new ideas that the American public would accept? What authority would give prestige and fashion assurance to a woman buying a new dress of different silhouette? Before the war, French designers initiated; Americans initiated or adapted. Now, although American designers are far more self-sufficient, neither group is positive what will please the American customer. She has had to take her fashions short, straight, and narrow with no chance to look at anything else and decide whether she likes it. The French, used to putting more material into a garment, did not know how quickly American women would accept more fullness.

With transatlantic travel once more possible, although expensive and uncomfortable, a few American manufacturers and stylists went to Paris. While these visits were announced as exploratory, and only for good will purposes, undoubtedly those who braved the hardships and costs secretly expected some direct return. However, even though American manufacturers had been used to paying well for the models which gave them their fashion inspiration, they were not prepared to pay current Paris costs. One manufacturer proudly announced, however, that he had bought original models costing $700 each in Paris—without expenses of shipment or duty.

When authorities agreed that Americans could hardly expect to buy models in Paris before the spring of 1946, and then only if present difficulties were surmounted, American designers resigned themselves to another season on their own. Many were jealous of the specter of Paris, fearing to lose their laurels. Others admitted freely that they could take Paris or leave it, but would prefer to take it, when its best again becomes available. But the more analytical among the manufacturers and designers foresaw improvements in both selection and timing, in order to make Paris more profitable for them.

Out of necessity was born an idea which gave fashion prestige to the American woman and her way of life and dressing. "The American Look," started as an advertising theme by a Fifth Avenue store, was so admirably descriptive that it became accepted overnight as America's own exclusive contribution to fashion.

The American Look did much to abolish from our thinking the inferiority complex that American women have always felt when fashion is discussed. With the coming of this expression and all the meaning it conveyed, American women came to realize that, in addition to being the most fortunate women in the world today, they have achieved a charm, a distinction, a quality of dressing and grooming as American as democracy itself.

What effect will the crystallization of all our style development into this single phrase have upon the rest of the world? A well-informed writer in a popular magazine in September 1945, went so far as to predict that Paris, London, Moscow, Buenos Aires, Melbourne and all other world capitals will imitate the American Look far more eagerly than the world ever tried to ape the modes of Paris.

Increasing prestige and publicity were accorded fashion developments from noncommercial sources. The Metropolitan Museum of Art opened its impressive doors to an exhibit of costumes by foremost designers, created from fabrics inspired by museum collections. The Museum of Modern Art held its first exhibit with fashion as a theme, called "Are Clothes Modern?" Coty again presented awards, with an impressive fashion show and much fanfare, to three American designers: this time California's Adrian, acknowledged by many to be America's foremost designer; sportswear creator Tina Leser; and Emily Wilkens, who concentrates on teen age clothes.

That fashion as a business commands increased respect is proved by the terminology. In the vernacular, it was for some years called "the rag business." More recently, the more dignified term of "needle trades" came into use. It is only since the war gave this country the fashion crown, and Mayor LaGuardia made New York self-conscious about its opportunities, that the term "fashion industry" came into widespread use.

The fashion industry has prospered, in spite of shortages of practically everything, and almost insupportable delays. It is not at all uncommon for a store to place orders in June with manufacturers for dresses to be delivered any time up to November 30. A sellers' market kept buyers begging, cajoling and pleading with manufacturers for delivery of merchandise to sell. The buyer, instead of being feted by the heads of important manufacturing establishments, was not above offering favors and inducements to the delivery clerk, who determined which customers received merchandise.

Whatever stores could manage to get into stock sold at any price. While the government worried, had conferences and passed laws about the disappearance of utility clothing to suit the lower income brackets, there was almost no demand for this type of clothing. On the other hand, there was no limit on luxury clothes, nor on their prices. A pair of shoes sold commonly for amounts which would have purchased a very good dress in the thirties; handbags commanded prices for which a suit might have been custom tailored before the war; and a large middle western store purchased a single hat of rare feathers which it expected to sell for $700!

As the year 1945 neared its end, one by one the luxuries precious to women began to return. Nylon stockings were put on sale by stores which had devised ingenious ways of preventing riots. Metals for jewelry and leather for handbags and shoes were released. Even two-way stretch elastic to control the American figure was expected.

And so, while 1945 presented no spectacular new developments, it proved to be a year of both self-inventory and of reconversion for the fashion industry.

JULIA COBURN,
Executive Director, Tobé-Coburn School for Fashion Careers.

FEDERAL BARGE LINES. See INLAND WATERWAYS CORPORATION.

FEDERAL BUREAU OF INVESTIGATION (FBI). This bureau was established within the Department of Justice in 1908 by Attorney General Charles J. Bonaparte. While originally called the

Bureau of Investigation, the present name was adopted in July 1935. The director of the FBI, Mr. John Edgar Hoover, was appointed in 1924 by Attorney General Harlan Fiske Stone, and has been reappointed by each succeeding Attorney General.

The FBI has its headquarters in Washington, D.C., and operates through 52 field offices located in the Continental United States and its territorial possessions. Its jurisdiction extends generally to all federal crimes not specifically assigned to another agency of the federal government. Specifically, it is charged with the duty of investigating violations of the laws of the United States, collecting evidence in cases in which the United States is or may be a party in interest, and performing other duties imposed upon it by law.

At its Washington headquarters the FBI maintains, in addition to its administrative offices, its Identification Division, the FBI Laboratory, the National Academy and its Uniform Crime Reporting facilities. The Identification Division maintains the largest number of fingerprint records in the world. At the close of the 1945 fiscal year there were 97,497,563 sets of fingerprints on file. The FBI Laboratory was established in September 1932, as a scientific aid in crime detection. Here competent scientists are constantly working on evidence submitted by law enforcement agencies throughout the United States and in addition are conducting research to further aid law enforcement. In the fiscal year ended June 30, 1945, 136,098 examinations were conducted by the laboratory.

The FBI National Academy, established in July 1935, is concerned primarily with the training of police instructors and administrators. Applicants for attendance are carefully selected from local, county and state law enforcement agencies. The course of instruction consists of various phases of law enforcement with special emphasis placed on methods of teaching and organization of police schools.

In its Uniform Crime Reporting project the FBI, at the request of the International Association of Chiefs of Police and pursuant to an act of Congress, acts as a central clearinghouse for police statistics on a nationwide basis. Monthly and annual crime reports forwarded to the FBI reflecting information as to the number of offenses committed, the number cleared by arrest, the number of persons arrested, the number found guilty and related crime data, are summarized and published in the *Uniform Crime Reports Bulletin*.

The President of the United States designated the FBI as the clearinghouse for all matters pertaining to national security. The investigation of espionage, sabotage, subversive activities and violations of the Selective Training and Service Act also come within the sphere of the bureau's jurisdiction. By Presidential proclamations of December 1941, and July 1942, the FBI was made responsible for the apprehension of alien enemies in the continental United States, Puerto Rico and the Virgin Islands. By June 30, 1945, 16,054 alien enemies had been apprehended by the Federal Bureau of Investigation and co-operating agencies.

Both during and since the war, the FBI has continued to give close attention to its responsibilities in the general criminal field. These obligations include the enforcement of such laws as the National Motor Vehicle Theft Act, White Slave Traffic Act, Theft from Interstate Shipment Statute, Federal Kidnaping Act, Federal Bank Robbery Act, National Stolen Property Act and many others.

During the fiscal year of 1945 there were 13,813 convictions in cases investigated by the FBI with sentences totaling 31,962 years, 4 months and 6 days, 1 death sentence and 6 life sentences. Fines, savings and recoveries amounted to $16,534,436.21. A total of 8,955 fugitives were located and 7,892 automobiles valued at $6,402,439 were recovered in cases investigated. The percentage of convictions of persons brought to trial was 96.9.

JOHN EDGAR HOOVER,
Director, Federal Bureau of Investigation.

FEDERAL COMMUNICATIONS COMMISSION. To provide for the future expansion of existing radio services and for the introduction of many new services, the Federal Communications Commission during the fiscal year ended June 30, 1945, issued frequency allocations in the radio spectrum from 25,000 kilocycles to 30,000,000 kilocycles. Proposed allocations were also issued for the portion of the spectrum from 10 kilocycles to 25,000 kilocycles. Wartime developments had created many new and expanded uses of radio and had also produced equipment capable of operating far above the previous upper limit of the spectrum—300,000 kilocycles.

These allocations were decided upon following various hearings, including one *en banc* session, by the commission extending from September 28 through November 2, during which it heard 4,559 pages of testimony by 231 witnesses including representatives of the radio industry, of other interested organizations and government agencies and by members of its own staff. The industry recommendations were presented principally by the Radio Technical Planning Board which had conducted detailed studies for more than a year. Despite the obvious handicap under which both the commission and the industry labored because of the war, it is believed that this was the most intensive and comprehensive preparation for a proceeding of this character in the history of radio regulation. During the hearings it developed that despite the raising of the spectrum ceiling by wartime inventions, the demand for radio channels far exceeded the supply.

New services provided for in the allocations included Railroad Radio Service, the Citizens Radio-communication Service for short range communication, Rural Telephone Service, Industrial and Medical Service, General Mobile Service for motor vehicles and other land, air and marine mobile units, Limited Private Telephone Service employing light portable equipment for important communications in connection with the protection of life and property in construction activities.

In the consideration of frequency modulation (FM) broadcasting, there was substantial difference of opinion as to which area in the spectrum would afford the greatest freedom from Sporadic E and F-2 Layer interference. After lengthy study of this special problem, the commission decided to move FM from its existing location of 42–50 to 88–106 Mc. These transmissions, the commission concluded, were serious enough below 88 Mc to cause interference between stations at distances of hundreds and even thousands of miles, rendering FM receivers useless to many listeners for substantial periods of time. Twenty channels (88–92 Mc) were allocated for non-commercial educational FM; 70 channels (92–106 Mc) for commercial FM. This would

permit the construction of upwards of 5,000 FM stations.

Dr. John W. Studebaker, U. S. Commissioner of Education, testified at the hearing that plans were under way in 28 states to construct a sufficient number of educational FM stations, and to space them in such fashion that every single school and every single home in the state would be able to receive educational broadcasts from at least one station. He estimated that there might be as many as 500 such stations on the air in five years.

To facilitate the immediate postwar growth of television, the commission allocated 13 channels six Mc wide below 300 Mc., for which region of the spectrum equipment had already been developed and was in use. However, the commission's report asserted that there was not sufficient spectrum space available below 300 Mc to make possible a truly nationwide and competitive television system. Such a system, the report stated, must find its lodging higher up in the spectrum where more space exists and where color pictures and superior monochrome pictures can be developed through the use of wider channels. To make this development possible, the commission allocated the space between 480 and 920 Mc for experimental television. The commission urged all persons interested in the future of television to undertake comprehensive and adequate experimentation in the upper portion of the spectrum.

Increased channels were provided for aviation, facsimile, amateurs, fixed public services, coastal, marine relay, ship, mobile press services, police, fire, forestry and conservation services, electric, gas, water and steam utilities, transit utilities and for relay systems.

On May 21, 1945, the commission issued its proposed allocation of frequencies to nongovernmental services below 25,000 kilocycles providing for the addition of the 540–550 Kc channel to the present standard broadcast band; 120 channels for direct international shortwave broadcasting; more frequencies for amateur use and in addition a specific band for the establishment of a disaster communication network for amateurs; and a more equitable distribution of frequencies for aviation and small surface craft use. Oral argument on the proposed report was held June 20, 1945. At the end of the fiscal year a final decision on allocations in this region of the spectrum was still pending.

On July 25, 1944, the commission asked Congressional direction as to the policy it should follow in passing on the sale of radio stations where the sales prices are far in excess of the going-concern and physical property values of the stations and appear to involve considerable compensation for the radio frequencies themselves. A general public hearing (later postponed to October 23) was ordered by the commission on Feb. 20, 1945, to determine what changes, if any, should be made in the present policies on allocation of so-called clear channels in the standard broadcast band. Commission studies disclosed that although clear channel stations were authorized with the particular aim of providing the rural population with a radio service, there are still large areas which receive no radio service at all during the daytime hours and no primary service at night.

Two significant experiments in radio relay transmission were authorized by the commission. Western Union was granted authority on March 21, 1945, to make experiments to determine the practicability of radio relay circuits for the transmission of its regular commercial traffic, with a view to the ultimate use of radio relay circuits to supplement or to supplant wire circuits, and for the transmission of its common carrier traffic upon a regular basis. An ultra-high and super-high frequency wide band beamed communication system was to be installed by means of a chain of radio stations extending from Camden, N.J., to New York, N.Y., with intermediate unattended radio repeater stations at Bordentown and New Brunswick, N.J.

The Raytheon Manufacturing Company was authorized to construct five experimental radio relay stations between Boston and New York to develop a broad-band micro-wave relay system for the transmission and relaying of high definition television pictures, high-fidelity FM programs, and telegraph, telephone and facsimile communications. An important phase of the experimental program provides for the development of a system of aeronautical safety communications, aircraft traffic control and an automatic reporting service on the positions of aircraft which would be provided simultaneously with transmission of FM and television programs and other point-to-point communications.

Changes in Rules.—Section 1.5 (b) of the commission's Rules of Practice and Procedure regarding Inspection of Records was amended so as to include in the files of the commission, open to inspection, all communications protesting or endorsing applications and amendments thereto filed under Title II (Common Carrier) and Title III (Radio) of the act, including all documents and exhibits filed with and made a part thereof.

To apprise listeners of the source and kind of payment received by radio stations for sponsored programs, including political broadcasts, the commission adopted a rule requiring appropriate announcements.

As a safeguard against circumvention of its rules requiring identification of recorded broadcast programs, the commission adopted an amendment requiring that stations "shall not attempt affirmatively to create the impression that any program being broadcast by mechanical reproduction consists of live talent."

Rate Reductions.—Following negotiations between the commission and the Bell System, rates for telephone calls between interstate points within the United States in excess of 790 miles, and between points in the United States and points in Canada in excess of 810 miles, were reduced on July 1, 1945, resulting in anticipated annual savings of $21,000,000.

In line with its objectives of obtaining lower and uniform rates for international communications throughout the world, the commission authorized a number of important rate reductions during the year. Beginning in August 1944, the rates for three minute telephone calls between points in the United States and points in all but four countries in South America were reduced by amounts ranging from $2.25 to $6.75, or over 36 per cent in some cases. Subsequently, reductions were made between the United States, and most points in Central America and the West Indies, Hawaii, and Great Britain. Depending on the point of origin (or destination) in the United States, rate reductions have in some instances been over 50 per cent. At the close of the year negotiations were under way between the United States and international carriers and, in some cases, plans definitely made, for rate

reductions to and from other countries in Europe, South America and the Pacific area.

Reductions to 20 cents per word on full rate telegraph messages from the United States to Europe, Central America, West Indies, South America and the Philippines by the United States international carriers became effective May 1. The corresponding rates formerly effective ranged from 23 to 48 cents per word. Effective at the same time a uniform full rate of four cents a word was established by the Western Union Telegraph Company for transmitting international telegrams overland to and from any point in the United States beyond the gateway city where the message actually enters or leaves the country. Previously, the Western Union had rate differentials ranging from 4 to 15 cents a word for overland haul of international telegrams sent from or destined to cities located in different parts of the United States.

Extension of Service.—Because of wartime restrictions, the commission in general limited its authorizations for new standard broadcast facilities to small 250-watt stations where the necessary equipment and manpower were shown to be available. At the end of the fiscal year, 931 stations were in operation and 171 applications were on file. Net revenues from the sale of time totaling $246,339,532 were reported by the four major and five regional networks and 875 standard stations for the year 1944 as compared with $195,704,153 reported by these networks and by 841 stations for the previous year—an increase of 25.8 per cent.

The freeze on manpower and material continued to prevent the construction of new FM and television stations. Forty-six FM stations were on the air, 429 applications for new stations pending. Six television stations were in operation, with 118 applications on file. A total of 36 international stations were in operation.

Approximately 1,700,000 miles of toll message channels were added to the Bell Telephone System facilities. The commission authorized the construction of 1,112 route miles of coaxial cable suitable for both telephone and television transmission. The demand for telephone toll service continued to grow to new peak levels. During the year, 730,000,000 toll board calls were handled by the Bell System and 621,000,000 short haul toll calls were handled through Bell operated boards other than toll boards. These figures represent increases over the preceding year of 11 per cent and 3 per cent, respectively.

The commission authorized the construction of 269,965 channel miles of telegraph carrier systems at an estimated cost of $1,162,651. At the end of the year, Western Union had, with the exception of three functional offices, completed the consolidation of telegraph offices as authorized in the commission's order approving merger with Postal Telegraph.

Following in the wake of the invading American armies, United States communications carriers instituted service from Italy on Feb. 1, 1944 and from France on August 31, 1944.

Experimental activities in the field of radio and electronics were developed to an unprecedented degree with the commission issuing 1,143 authorizations, a 100 per cent increase over the preceding year.

Safety and Wartime Activities.—To promote the safety of life and property at sea, an especially vital function during wartime, the commission field staff made 15,731 inspections of radio installations on cargo and passenger ships.

During the course of its work of maintaining a surveillance of the ether to detect espionage or other illegal radio transmission, the Radio Intelligence Division primary and secondary stations took 85,031 bearings. This was exclusive of bearings taken on distressed aircraft and vessels. The RID received 996 requests for direction-finding aid to lost planes, handled 1,895 complaints and investigations, found 46 illegal stations.

The Foreign Broadcast Intelligence Service, monitoring foreign radio broadcasts, provided texts and summaries of broadcasts originating in 55 countries daily by teleprinter, to 14 departments and agencies of the federal government by mimeographed daily reports to 23 and by special service to some 22 agencies which did not subscribe for the regular service. The material was also made available to the representatives of 22 foreign governments. All broadcast messages relating to American and Allied servicemen held prisoner of war were communicated immediately by wire to the War Department which notified relatives. Special reports based on broadcast material were prepared as required for military and civil authorities. The service was based on an examination of several million words of broadcast text monitored daily.

Commission employes at the end of the fiscal year totaled 1,513 of whom 784 were in Washington and 729 in the field. See also ELECTRONICS; RADIO; TELEVISION.

Commission.—The members of the commission are: Paul A. Porter, chairman, Paul A. Walker, Ray C. Wakefield, Clifford J. Durr, E. K. Jett, Charles R. Denny and William H. Wills.

PAUL A. PORTER,
Chairman, Federal Communications Commission.

FEDERAL CROP INSURANCE CORPORATION. This agency was created within the U. S. Department of Agriculture by an act of Congress in 1938. Wheat crops were insured beginning with the crop planted for harvest in 1939. Insurance was extended to cotton beginning with the crop planted for harvest in 1942. Both wheat and cotton crops were insured through the crop year 1943. There was no insurance written on 1944 crops because the 1944 and 1945 Agricultural Appropriation Acts provided funds only for liquidating the insurance on 1943 and earlier crops. However, legislation enacted in December 1944 repealed the legislative provisions of the 1944 and 1945 Agricultural Appropriation Acts and changed certain provisions of the basic Crop Insurance Act with the view of improving the program and of extending the benefits of crop insurance to a larger number of farmers.

The act, as amended, authorizes the insurance of crops planted for harvest in 1945 and makes insurance protection available not only to producers of wheat and cotton but to producers of flax also. In addition, it provides for trial insurance on other commodities for the purpose of determining the most practical plan, terms, and conditions of insurance on such commodities. Such trial insurance on each commodity is limited to a period of three years in not to exceed 20 representative counties. It is limited to corn and tobacco in 1945 and can be started on only three additional commodities each future year.

The amount of insurance written for 1945 is shown in the tabulation below. The figures in this tabulation represent an abnormal situation; insurance was written in a short period after reinstatement on spring planted crops only. Insur-

ance is already written for 1946 winter wheat crops covering about 300,000 farms. It is thus probable that insurance for all commodities in 1946 will cover more than one-half million farms, reaching at least the amount of insurance in 1943 before the program was discontinued. Corn trial insurance is written in 1945 in 15 counties and tobacco trial insurance in 13 counties.

Commodity	No. of Applications	No. of Farms Covered
Cotton	95,756	113,183
Spring Wheat	14,390	23,394
Flax	31,131	38,072
Corn	10,603	12,363
Tobacco	12,564	12,288
Total	164,444	199,300

Insurance is against losses due to unavoidable causes. Insurance on wheat, cotton, and flax is against loss of yield. Insurance coverage on these crops may be either 75 per cent or 50 per cent of the long-time average yield for the insured farm. If the yield in the year of insurance is less than the coverage, the grower is indemnified for the shortage. The premium rate is based on the risk of producing the commodity. Premiums and indemnities are computed in bushels of wheat or flax and pounds of cotton, but payment is usually in the cash equivalent thereof.

Two plans of trial insurance are offered on corn and tobacco. One plan is against loss of investment in the crop, with a coverage of 75 per cent of the investment as determined by the corporation. If the returns from the crop in the year of insurance are less than the coverage, the grower is indemnified for the shortage. The second plan of insurance on corn is against loss of yield—the same plan as used for wheat, cotton and flax. The second plan for tobacco is against not only loss of yield but also loss of quality. The amount of coverage is a dollar figure determined at the end of the season by multiplying 75 per cent of the farm average yield by an average or representative price for tobacco in the year of insurance, as adjusted upward or downward to reflect the experience of the insured for previous years in selling at prices above or below the market average. If the insured's returns from his crop are less than this figure, he is indemnified for the shortage.

The amount of insurance protection is modified somewhat for all commodities in circumstances where the insured grower does not incur the full cost of producing and harvesting the crop. If a complete loss occurs early in the growing season, but after it is too late to replant to the insured crop, the amount of protection is 40 to 50 per cent (depending upon the commodity) of the maximum coverage. From there on, the amount of protection increases progressively with the stages of the crop.

The corporation has three sources of funds: (1) premiums which are set at what is believed adequate to cover average crop losses plus reserves against unforeseen losses, (2) a capital provided by the government to absorb year-to-year fluctuations in losses, and (3) an annual appropriation to cover costs of administration. The government's contribution in the form of capital and annual appropriations for administration is based on the public welfare aspect of the program.

Participation in the program by growers is voluntary. A 3-year contract is used for wheat and a 1-year contract for the other commodities. Federal crop insurance is administered in states and counties by committees of the Field Service Branch of the Production and Marketing Administration and the staff of the state directors of the corporation.

J. CARL WRIGHT,
Manager, Federal Crop Insurance Corporation.

FEDERAL DEPOSIT INSURANCE CORPORATION. According to the report of the board of directors, the income of the corporation for the year ended June 30, 1945, amounted to $112,746,000, derived from the following sources: $86,383,000 assessments paid by insured banks, $25,936,000 interest earned and profits from sales of securities less provision for amortization of premiums, and $427,000 other income. Total losses and expenses for the year amounted to $4,029,000, divided between deposit insurance losses and expenses of $210,000 and administrative expenses and other charges of $3,819,000.

The surplus of the corporation on June 30, 1945, was $579,169,000 resulting from an excess of income over expenses and losses during the entire period of operations. Total income from the beginning of deposit insurance on Jan. 1, 1934, to June 30, 1945, amounted to $653,682,000 including assessments of $514,859,000 paid by insured banks, $137,000,000 derived from interest earned and profits from sales of securities after making provision for amortization of premiums, and other income of $1,823,000. Charges to surplus amounted to $74,513,000. Net deposit insurance losses and expenses amounted to $34,828,000, the difference between total disbursements of $298,815,000 actually made or pending to protect depositors of weak or insolvent insured banks and estimated recoveries of $263,987,000. Administrative expenses and other charges amounted to $39,685,000.

On June 30, 1945, the balance sheet of the corporation showed total assets amounting to $870,111,000 including $838,071,000 in United States government securities and accrued interest receivable and $10,774,000 in cash on hand. Capital accounts included capital stock of $289,300,000 and surplus of $579,169,000. Liabilities totaled only $1,642,000.

The Federal Deposit Insurance Corporation insured deposits in 13,474 operating banks with total deposits amounting to $143,954,000,000 of which approximately $55,000,000,000 were covered by the maximum insurance of $5,000 for each depositor on June 30, 1945. During the year ended on that date the number of insured banks increased by 13. Of the 101 banks admitted to insurance, 23 were in operation on June 30, 1944, and 78 opened for business after that date. There were 88 banks eliminated: 1 by merger with financial aid from the corporation and the remainder by voluntary merger, consolidation, or liquidation. In the one insured bank merged with financial aid from the corporation, all of the 12,484 depositors having total deposits of $5,695,000 were fully protected from loss by the terms of the merger agreement.

By June 30, 1945, 398 insured banks, having 1,309,703 depositors with total deposits of $504,929,000, had been liquidated or merged with the aid of loans from the corporation. Deposits amounting to $493,851,000, 97.8 per cent of the total deposits in the 398 banks, were made available promptly without loss to the depositors. Only 2,113 of the 1,309,703 depositors, or less than one sixth of 1 per cent, held accounts in excess of $5,000 which were not fully protected by insurance, offset, preferment, pledge of security, or terms of the merger agreements.

Federal Credit Unions.—On June 30, 1945, there were 3,800 federal cerdit unions in operation. These co-operative associations were organized in accordance with the Federal Credit Union Act, as amended (Title 12 U.S.C. 1751–1771) for the purpose of promoting thrift among their members and creating a source of credit for provident or productive purposes.

Effective May 16, 1942, the responsibility for the chartering and supervision of federal credit unions was transferred from the Farm Credit Administration and the governor thereof to the Federal Deposit Insurance Corporation by Executive Order No. 9148 of April 27, 1942. However, share balances in credit unions are not insured by the Federal Deposit Insurance Corporation.

HOMER JONES,
Chief, Division of Research and Statistics, Federal Deposit Insurance Corporation.

FEDERAL HOME LOAN BANK ADMINISTRATION. See NATIONAL HOUSING AGENCY, Section 2.

FEDERAL HOUSING ADMINISTRATION. See NATIONAL HOUSING AGENCY, Section 3.

FEDERAL POWER COMMISSION. In its past year, its 25th, the commission continued its regulatory work and other responsibilities under the Federal Power Act, the Natural Gas Act, Flood Control Acts, and its other jurisdictional statutes and executive orders, beginning the transition from wartime to peacetime activities.

The year was marked by important court decisions settling disputed jurisdictional questions and firmly establishing the commission's authority to use the prudent investment rate base.

The case of *The California Oregon Power Company* v. *Federal Power Commission*, decided by the U.S. Circuit Court of Appeals for the Ninth Circuit on June 15, 1945, sustained the accounting power of the commission to order amortization of excess over acquisition cost representing payments for intangibles classified in Account 100.5 of the commission's Uniform System of Accounts. In *Arkansas Power & Light Company* v. *Federal Power Commission*, decided June 6, 1945, by the U.S. District Court for the District of Columbia, a complaint asking for an injunction against a hearing in a commission accounting case was denied on the authority of *Northwestern Electric Co.* v. *Federal Power Commission*, 321 U.S. 119, in which case the United States Supreme Court had generally sustained the commission's accounting jurisdiction.

The prudent investment rate base principle, adopted by the commission in its rate cases and approved by the United States Supreme Court in the Natural Gas Pipeline Company and Hope Natural Gas Company cases, has become firmly established as a result of the decisions during the past year of the Supreme Court in the cases of *Colorado Interstate Gas Company* v. *Federal Power Commission, Canadian River Gas Company* v. *Federal Power Commission, Colorado-Wyoming Gas Company* v. *Federal Power Commission*, and *Panhandle Eastern Pipe Line Company* v. *Federal Power Commission*. Under the latter case, the commission may exclude all evidence of reproduction cost. These cases also sustained the commission in including in the rate base production and gathering properties owned and used by the natural-gas company whose rates are regulated.

No changes have been made in the commission's jurisdictional statutes, except by certain provisions in the Flood Control Act of 1944, enacted Dec. 22, 1944, one of which requires approval of the commission for all rate schedules for the sale by the Secretary of the Interior of electric energy generated at reservoir projects under the control of the War Department and, in the opinion of the Secretary of War, not required in the operation of the projects. This is similar to the approval of rates by the commission required by the Bonneville Act, the Fort Peck Act and, by executive order, as to the Denison, Grand River and Norfork dams. The commission recently made an allocation of cost of the Bonneville project as between power and other purposes.

In addition to its licensing of hydroelectric power projects on navigable streams or government lands, the commission continued its regulation of the interstate wholesale rates and accounts of electric public utilities and natural-gas companies. As a result of these activities, write-ups and other inflationary items totaling $881,000,000 had been eliminated from plant accounts by Sept. 1, 1945, and reductions in rates approximating $40,000,000 annually or a cumulative total of $100,000,000 had been achieved.

Since Feb. 7, 1942, when Section 7 of the Natural Gas Act was amended, the commission has had considerable activity in issuing certificates of public convenience and necessity covering the construction, operation and acquisition of facilities for the transportation and sale of natural gas in interstate commerce. Since the amendatory date of the act to Sept. 1, 1945, certificates were issued for the construction and operation of new facilities with an estimated cost of $158,000,000 and for the acquisition of facilities with a book cost totaling $224,000,000. In the first eight months of 1945, such certificates authorized $42,000,000 in new construction and $28,000,000 in book cost of facilities acquired.

In connection with its gas certificate work, the commission encountered the conservation problem and the problem of end uses of natural gas. As a result, the commission, within the year, instituted a general investigation into the conservation and utilization of natural gas, scheduling hearings throughout the remainder of the year 1945. This investigation has been undertaken to determine the extent and probable life of the nation's natural gas reserves, the extent and probable future utilization of natural gas for domestic, commercial and industrial purposes, the extent, character and results of the competition of natural gas with other fuels, and what additional legislation, if any, should be recommended to Congress.

Under Flood Control Acts and the Rivers and Harbors Act of 1945 the commission investigated during the fiscal year 1945 the power possibilities of over 300 flood control and other reservoir projects involving 27 river basins covering 24 states. Surveys for several sections of the country regarding utilization and marketing of electric power from existing and future hydroelectric development have been completed and others are under way.

During the year the commission staff participated in several co-operative studies and reports with members of the Federal Inter-Agency River Basin Committee, formed in December 1944, by joint agreement between the Federal Power Commission, the departments of War, Interior and Agriculture, under which agencies of these departments and the commission co-operate and correlate results of their multiple-purpose river basin project activities.

The commission continued activities for the war effort including the internal security program for the protection of electric and gas plants and facilities from sabotage and other hostile acts. In January 1944, by request of the War Department, the commission assumed sole responsibility for all future protection work. Other war work included surveys and reports of power resources and war power requirements, reports for use of war agencies on electric power supply in enemy and enemy-occupied countries covering most of Europe and the Far East, and emergency interconnection of facilities. Under presidential directive of 1942 it continued also to render assistance in securing adequate power at reasonable rates for war requirements of the federal government. Through August 1945 over 1,100 contracts involving an estimated annual bill of approximately $200,000,000 had been filed with the commission for review. This joint effort of the commission and the procurement agencies has resulted in aggregate savings of approximately $25,000,000.

The commission published during 1945 another edition of its annual series of *Typical Electric Bills*, showing that the average charge per kilowatt-hour for residential electricity in cities of 50,000 population or more decreased nearly 40 per cent in the last 20 years. The publication also shows that wide variations in charges for the same quantity and kind of electric service in different cities continued, the greatest spread for 100 kilowatt-hours per month being 390.5 per cent.

The commission published a volume entitled *Industrial Electric Power in the United States*, showing that total production of electric energy for public and industrial uses in 1944 was approximately 280 billion kilowatt-hours, an increase since 1939 of 73.3 per cent.

During 1945 the commission continued to make monthly statistical reports to the industry on power supply, consumption of fuel for the generation of electricity and related data, and continued to publish its *National Electric Rate Book* and *Statistics of Electric Utilities*. It also issued Volume III of its reported opinions and decisions.

LEON M. FUQUAY,
Secretary, Federal Power Commission.

FEDERAL PRISON INDUSTRIES, Inc. Operating under the general supervision of the Attorney General, this government corporation was organized for the express purpose of providing constructive employment and industrial and vocational training for as large a number as possible of the inmates in the federal penal and correctional institutions. The corporation was created by an executive order of the president dated Dec. 11, 1934, pursuant to the act of Congress approved June 23, 1934. A nonsalaried board of directors, consisting of five members representing labor, industry, retailers and consumers, agriculture and the attorney general are appointed by the president. This board formulates the policies and reviews, generally, the functions and operations of the corporation. The board of directors also appoints the commissioner of industries, who serves as the chief executive officer of the corporation. All commodities manufactured in the various federal prison industries are sold only to other federal government departments and agencies.

During the 1944–45 fiscal year, the corporation operated 54 factories and shops in 22 of the institutions in the Federal Prison System, which employed an average of 3,618 inmates. The total value of goods produced during this year amounted to $17,557,498, out of which $957,489 was paid out in inmate wages. Approximately 75 per cent of all inmate wages were paid to their dependents. As in the previous war years, 98 per cent of all sales were again made to the armed services and other war agencies of the government. The goods produced included such articles as work gloves, mattresses and beds for the army and navy, parachutes for the Weather Bureau, barracks bags, sea bags, tarpaulins, canvas shell covers, canvas water tanks, army shoes, tool racks, tool chests, food trays, bedside cabinets for hospital use, cargo nets and camouflage nets, pallets for warehouses, brooms and brushes of various kinds, canned goods and dehydrated products, mosquito bar frames and artificial limbs, wood and fiber furniture. Other activities of a service nature consisted of the salvage of large amounts of copper wire and cable, laundry work for both army and navy installation, and field printing for numerous government agencies.

In addition to the actual production of goods, the corporation has been financing an increasingly comprehensive vocational and trade training program. During the war years the training program emphasized primarily training for war production industries which provided opportunities for placement. A little over 1,900 men were enrolled in a variety of training courses in welding, sheet-metal, machine shop, aircraft mechanics, auto mechanics, and drafting. A major portion of this training program was conducted in conjunction with the nationwide war production training program sponsored by the United States Office of Education. Since this particular program was being discontinued throughout the country towards the end of the fiscal year, the vocational training program in the federal penal and correctional institutions was being redirected towards peacetime and more long range objectives.

One of the most unique training projects in prison or reformatory treatment is the Airplane Mechanics School at the Federal Reformatory, Chillicothe, Ohio. This is a central school furnishing full time training for a group of men carefully selected from the reformatory as well as from other federal institutions. The course covers a full year's training and during the past year, 92 students were enrolled and 33 were graduated and released. Of this group, 12 obtained civil service status and were placed in Army Air Force Depots, 10 were placed in aircraft industries, 2 were placed in other industries in Allied occupation, 3 were placed with commercial airlines or airports, and 6 were inducted into the army. It is anticipated that with some additions in equipment and minor changes in the training course, this school will be certified by the Civil Aeronautics Administration as an approved airplane mechanics school.

A. H. CONNER,
Associate Commissioner, Federal Prison Industries, Inc.

FEDERAL PUBLIC HOUSING AUTHORITY. See NATIONAL HOUSING AGENCY, Section 4.

FEDERAL SAVINGS AND LOAN INSURANCE CORPORATION. See NATIONAL HOUSING AGENCY, Section 2.

FEDERAL SECURITY AGENCY (FSA). Created under the President's first plan of government reorganization authorized by the Reorganization Act of 1939, the purpose of this agency is to

promote "social and economic security, educational opportunity, and the health of the citizens of the Nation." To that end, it brings together government agencies having related responsibilities in these broad fields. As at present constituted, the constituent units of the agency are the Public Health Service (q.v.) under which is Freedmen's Hospital; the Office of Education; the Social Security Board (q.v.); the Food and Drug Administration (q.v.); St. Elizabeths Hospital; the Office of Vocational Rehabilitation. The agency also represents federal participation in the work of the American Printing House for the Blind; Howard University; and Columbia Institution for the Deaf. The direction of the agency is in the hands of the Federal Security Administrator.

Office of Community War Services.— The Office of Community War Services, which has served as the war arm of the Federal Security Agency, continued its services in helping communities to provide health, medical care, welfare, recreation, education, social protection, and related services to families and individuals in war-affected areas. Because of the approaching close and finally the end of the war, these activities are somewhat reduced in scope, and in some instances changed in emphasis.

The two major functions of the Office of Community War Services have been carried on by its two main divisions, Social Protection, and Recreation. The Social Protection Division, while continuing its co-operation with the army, and the navy, and with the United States Public Health Service, has worked closely with local officials and agencies to stimulate community action to prevent an increase of the ills of venereal disease and prostitution during the period of demobilization.

Strong efforts have been made to hold the gains in the 700 towns where red light districts have been closed. Local social protection committees have been strengthened and increased in number and several state committees have been organized to aid communities in meeting their social protection problems.

The Recreation Division, before the restriction of its activities by budget curtailment after V-E Day, carried on its work to help communities develop their recreation programs and to get added facilities and personnel. It continued to encourage programs for youth and conducted a nationwide survey of teen-age centers which resulted in a publication on the subject. In the new fiscal year the division has restricted its activities largely to carrying on its responsibility in relation to the USO (United Service Organization) in the maintenance and operation of 400 recreation buildings built with federal funds.

Although the end of the war restricted some of the activities of the Office of Community War Services, many activities begun as war projects have continued to gain in momentum.

Public Health Service.—The United States Public Health Service is the principal federal agency responsible for the promotion of national health. See PUBLIC HEALTH SERVICE, U. S.

Freedmen's Hospital, established in 1865, is administered by the Public Health Service, and is affiliated with Howard University Medical School. It is a general hospital with specialized departments, and is approved by the American College of Surgeons and the American Medical Association.

Food and Drug Administration.—This administration enforces five federal acts of which the one of greatest interest to the greatest number of people is the Food, Drug and Cosmetic Act of 1938, which superseded the Food and Drugs Act of 1906, commonly called the "Pure Food Law." See FOOD AND DRUG ADMINISTRATION.

Office of Education.—This office was established by Congress in 1867 "for the purpose of collecting such statistics and facts as shall show the condition and progress of education in several states and territories, and of diffusing such information . . . as shall aid the people of the United States in the establishment and maintenance of efficient school systems, and otherwise promote the cause of education throughout the country." The major divisions of the office include Elementary, Secondary, Vocation, and Higher Education, School Administration, International Education Relations, and Auxiliary Services. In addition to its regular activities of research, consultation, surveys and publications, the office administers grants-in-aid to the states for vocational education of less-than-college-grade and to land-grant colleges and universities.

Special war training programs on college level and less than college level authorized by Congress continued to be administered by the Office of Education until terminated June 30, 1945. Beginning on July 1, 1940, and ending June 30, 1945, these programs received almost $500,000,000 in federal appropriations to carry on war training activities. Through these programs more than 13,000,000 persons received free training in war production occupations during the five years the programs operated. See also EDUCATION, REVIEW OF.

Social Security Board.—This board was established in 1935 to administer the provisions of the Social Security Act dealing with old age and survivors insurance, unemployment compensation and public assistance to the needy aged, needy blind, and dependent children. See SOCIAL SECURITY BOARD.

Office of Vocational Rehabilitation.—This agency administers the Vocational Rehabilitation Act of July 6, 1943, which provides for the expansion of the federal-state program for rehabilitation of physically handicapped civilians. The law makes federal money available to states for remedial treatment as well as vocational training, and specifically provides for vocational rehabilitation of persons injured in nonmilitary war services.

St. Elizabeths Hospital.—This hospital was established by Congress in 1855. It provides treatment for the mentally ill among members of the armed forces, residents of the District of Columbia, Indians under the Bureau of Indian Affairs of the Department of the Interior, and certain other civilian groups. Psychiatric instruction is given to undergraduates, postgraduate students of the army and navy medical schools, and the medical schools of Georgetown and Howard universities. Various medical officers from the army, navy and Veterans' Administration are detailed to the hospital for training. Student nurses are given both general and psychiatric training in the nursing school of the hospital.

Howard University.—Located in Washington, D.C., this institution is supported jointly by Congressional appropriations and private funds for the higher education of the colored youth of the nation.

Columbia Institute for the Deaf.—All deaf mutes of teachable age of the District of Columbia are admitted to Columbia Institute for the Deaf without charge. The advanced department, known as Gallaudet College, offers the only advanced

course especially for deaf students given anywhere in the world. Congress maintains a definite number of free scholarships in this department for qualified deaf students from the states and territories.

American Printing House for the Blind.—This institution is located at Louisville, Ky., and assists public institutions in the education of blind youth by providing them with embossed books, recorded talking books, and apparatus for schools of the blind.

WATSON B. MILLER,
Acting Administrator, Federal Security Agency.

FEDERAL TRADE COMMISSION. An administrative agency of the federal government, organized March 16, 1915, under the Federal Trade Commission Act, which was approved Sept. 26, 1914, and amended March 21, 1938, by the Wheeler-Lea Act. Members of the commission are William A. Ayres, Kansas, chairman; Garland S. Ferguson, North Carolina; Ewin L. Davis, Tennessee; Robert E. Freer, Ohio, and Lowell B. Mason, Illinois. The commissioners are appointed by the president and confirmed by the Senate, each to serve seven years and not more than three to be of the same political party. In the event of a vacancy, the new member is appointed for the unexpired term of the commissioner he succeeds. The chairmanship of the commission rotates annually among its members.

The principal duties of the commission are (1) to promote free and fair competition in interstate trade in the interest of the public through prevention of price-fixing agreements, restraint-of-trade combinations, boycotts, unlawful price discriminations, and other unfair methods of competition and unfair and deceptive acts or practices; (2) to safeguard the life and health of the consuming public by preventing the dissemination of false advertisements of food, drugs, devices and cosmetics which may be injurious, and (3) to conduct investigations of a general or special character upon its own initiative, upon the direction of the president or the Congress, or upon application of the attorney general.

Investigations.—Continuing its general investigation, initiated in 1940, of methods and costs of distributing important consumer commodities, the commission in the 1945 fiscal year transmitted to Congress additional reports relating to advertising as a factor in distribution; milk distribution, prices, spreads and profits; and cost of production and distribution of fish in the Great Lakes Area and in New England. Previous reports dealt with food products, building materials, petroleum products, automobiles, rubber tires and tubes, electrical household appliances, and agricultural implements.

An investigation of the cigarette shortage among civilians was undertaken by the commission after it had received complaints from the public and distributors and a request from the chairman of the Senate Interstate Commerce Committee that such an inquiry be made. The commission reported that the shortage was caused principally by the diversion of a high percentage of total cigarette production to the armed forces and the Allies and was not attributable to violations of any laws under its jurisdiction.

Legal Activities.—Legal activities of the commission embrace administration of (1) the Federal Trade Commission Act which declares that unfair methods of competition and unfair or deceptive acts or practices in commerce are unlawful; (2) Section 2 of the Clayton Act, as amended by the Robinson-Patman Act, dealing with price and other discriminations, and Sections 3, 7, and 8 of the same act which prohibit, respectively, exclusive-dealing contracts, acquisitions of capital stock, and interlocking directorates; (3) the Export Trade (Webb-Pomerene) Act, which, for the purpose of promoting foreign trade, permits the organization of associations to engage exclusively in export trade under stated restrictions; and (4) the Wool Products Labeling Act, designed to protect industry, trade and the consumer against the evils resulting from the unrevealed presence of substitutes and mixtures in woolen products.

Complaints and Orders.—Under its statutory procedure the commission during the fiscal year issued 164 complaints alleging violations of the laws it administers and entered 140 orders to cease and desist from such violations. Of the complaints issued under the Federal Trade Commission Act, three involved price-fixing and restraint-of-trade combinations and 112 false and misleading advertising of various products, of which 30 alleged misrepresentation of the therapeutic properties of medicinal preparations. Thirteen complaints charged violation of the Wool Products Labeling Act and 22, violation of the Clayton Act as amended by the Robinson-Patman Act.

Among the orders to cease and desist, nine were directed against collusive bidding on government contracts; seven against price-fixing and restraint-of-trade combinations; 22 against violations of the Robinson-Patman Act; and three against violators of the Wool Products Labeling Act. The large majority of the other orders involved violations of the Federal Trade Commission Act.

Stipulations.—The commission under certain circumstances permits the respondent in a proceeding to sign a statement of fact and an agreement to discontinue the unfair practice involved. This stipulation procedure is a simplified and effective method of disposing of a case and saves both the government and the respondent the expense incident to trial of a complaint. During the fiscal year, 286 such stipulations were accepted, 66 pertaining especially to false claims made in radio and periodical advertising. The commission always reserves the right, for any reason it regards as sufficient, to refuse to extend the privilege of stipulation.

Court Cases.—United States Courts decided 27 cases in favor of the commission during the year, in two of which the Supreme Court of the United States sustained orders of the commission directed against use by two glucose manufacturers of the basing-point system of delivered prices. Circuit courts of appeals affirmed 16 orders to cease and desist, four with modifications. In six cases district courts entered judgments for civil penalties totaling $10,182 for violation of commission orders which had become final.

Trade Practice Conference Work.—The trade practice conference procedure provides a means whereby members of an industry may voluntarily co-operate with the commission in the formulation and establishment of trade practice rules having for their purpose the wholesale elimination of unfair methods of competition and other illegal acts and practices. Rules were approved and promulgated during the year for the following industries: Button jobbing, hearing aid, low pressure refrigerants, razor and razor blade, water heater, wood-cased lead pencil, and tuna (revised and extended rules). Trade practice rules are

administered by the commission for more than 150 industries.

Wool Products Labeling Act.—This act provides that products containing or purporting to contain wool, reprocessed wool or reused wool shall be labeled so as to disclose their true fiber content, thus protecting the consumer as well as manufacturers, distributors and other marketers from the unrevealed presence of substitutes and mixtures. The act was given wide application during the year. Field inspections were made of more than 11½ million products subject to the labeling provisions of the act and covered the labeling practices of several thousand concerns.

Radio and Periodical Advertising.—The commission during the fiscal year examined some 301,000 newspapers, magazine, catalog and other periodical advertisements and 562,260 commercial radio continuities, of which 17,260 published advertisements and 10,574 broadcast statements were designated for further review as containing representations that might be false and misleading. Where it appeared that an advertisement was false or misleading, the case was disposed of through the stipulation procedure or by the complaint and trial method.

Export Trade Act.—Under the provisions of this act, the commission during the year conducted investigations as to the operation of several export trade associations. One inquiry was completed and resulted in the commission making recommendations for the readjustment of the business of the Florida Hard Rock Phosphate Export Association. At the close of the year, 49 export associations were registered with the commission and were operating under the act.

OTIS B. JOHNSON,
Secretary, Federal Trade Commission.

FEDERAL WORKS AGENCY. Immediately after Japan's acceptance of the Potsdam Declaration on August 14, 1945, the constituent units of this agency—the Public Buildings Administration, the Public Roads Administration (see HIGHWAYS) and the Bureau of Community Facilities—began the liquidation of their war-connected activities and concentrated upon construction activities for peace.

Bureau of Community Facilities.—Responsibility for the administration of Titles II and IV of the Lanham Act, under which war-congested communities were assisted in the construction, operation and maintenance of necessary community facilities, was assigned to a new Bureau of Community Facilities created as of Jan. 1, 1945. In addition, the bureau was made responsible for administering the advance planning program of state and local postwar public works authorized by Title V of the War Mobilization and Reconversion Act of 1944.

To carry on activities under Title II of the Lanham Act during the fiscal year 1946, the previous authorization of $500,000,000 was increased by $30,000,000, and a new appropriation of $20,000,000 was added to previous appropriations totaling $497,000,000.

Projects completed, or in the preconstruction stage, as of June 30, 1945, included 1,131 schools, 810 general hospitals, 727 recreation facilities, 456 water systems, 441 sewer systems, and lesser numbers of venereal disease hospitals—a program carried out in co-operation with the United States Public Health Service—fire and police stations, streets and highways and miscellaneous facilities.

The generally improved financial position of ing the fiscal year 1945, the communities financed 38.7 per cent of their Lanham Act construction as compared with only 20 per cent in the three previous fiscal years.

Gross federal allotments for war public services (maintenance and operation) totaled $45,799,984 in the fiscal year 1945, as follows: child care, $18,639,440; regular school services, $16,281,337; venereal disease treatment centers, $5,166,255; recreation centers, $3,147,412; other services, $2,565,540.

On August 15, 1945, division engineers of the bureau were instructed by the administrator to suspend Lanham Act construction wherever possible, and to cancel contracts for the construction of facilities upon which actual work had not yet begun.

Commitments already made toward the financial support of regular school programs during the school year beginning in September were to be carried out.

Because many of the children in the child-care centers were sons and daughters of servicemen still overseas, the administrator asked the Congress to consider the advisability of authorizing continuation beyond October 31 of some of the centers. Congress authorized the operation to be continued until March 1, 1946.

Lanham Act facilities built wholly at federal expense were to be sold, wherever possible, to the local communities.

Title V of the War Mobilization and Reconversion Act of 1944 authorizes the administrator to make advances, from such funds as are appropriated for the purpose, to states and their political subdivisions to assist in the planning of public works. For this purpose $17,500,000 was appropriated, 90 per cent of the available funds to be allocated among the states in proportion to population.

As of Oct. 31, 1945, 1,418 applications for $10,107,645 with which to plan construction of public works to cost $351,107,327 had been approved. All advances are to be repaid to the federal government when construction of projects so planned is begun.

Public Buildings Administration.—Because of the scarcity of materials, no permanent federal buildings were constructed during the war. In the summer of 1945 two permanent buildings were under construction—a $1,200,000 laboratory for the study of tropical diseases at Bethesda, Md., for the United States Public Health Service, and a $2,600,000 federal office building at Suitland, Md.

The total cost of all PBA construction in fiscal year 1945, including Lanham Act construction assigned by the administrator, temporary federal buildings and war housing, was $14,007,971. In addition, repairs and alterations to buildings totaled $1,420,445, while the maintenance and operation of federal buildings in the District of Columbia involved an expenditure of $32,882,440.

PBA was awaiting Congressional authorization of a large program of needed construction of post offices, court houses, and other federal buildings.

PHILIP B. FLEMING,
Major General, U.S.A.; Federal Works Administrator.

FEDERATED MALAY STATES. See BRITISH MALAYA.

FELDSPAR. Stimulated by the active market for glass and glass products, a heavy demand

and sanitary pottery, and despite labor shortages, the outputs of both crude and ground feldspar in 1944 increased in comparison with 1943 figures, according to the United States Bureau of Mines. Domestic sales of crude feldspar in 1944 totaled 327,408 long tons valued at $1,813,937, a 6.2 per cent increase in quantity over 1943. The total value of crude spar sold in 1944 reached a new high and was 10 per cent above the $1,646,277 reported in 1943, the highest previous year. Sales of ground feldspar by merchant mills advanced to 343,201 short tons valued at $3,863,036, representing a 2.2 per cent increase in quantity and a 7.5 per cent increase in value over 1943. In tonnage, both crude and ground feldspar were only 3 per cent under the record year of 1941.

FERGUSON, John Calvin, American educator: b. Ontario, Canada, March 1, 1866; d. Clifton Springs, N.Y., Aug. 3, 1945. Dr. Ferguson lived in China for 56 years and was the founder and first president of Nanking University, adviser to several Chinese governments, former publisher of two Chinese newspapers, and an authority on Chinese art. Dr. Ferguson received a B.A. degree from Boston University in 1886 and a Ph.D. degree in 1902. He was sent to China in 1887 by the Methodist Episcopal Church to establish Nanking University, and served as its president from 1888 to 1897. From 1897 to 1902 he was president of Nanyang College in Shanghai. Winning the confidence of the ruling men in China, he served as foreign adviser to the viceroys of Nanking (1898–1911), and of Wuchang (1900–10), and was appointed secretary to the Chinese Ministry of Commerce in 1902. As such, he was a member of the Chinese commission for the revision of treaties with the United States, Great Britain, and Japan in 1902 and 1903. On seven occasions between the years 1901 and 1919 he was sent by the Chinese government on special missions to the United States. He was counselor to the Chinese Department of State (1915–17) and adviser to the president of the Republic of China (1917–28). His last post in China was that of adviser to the Executive Yuan of the National Government. Dr. Ferguson was the owner and publisher of the Shanghai daily newspaper, *Sin Wan Pao* from 1899 to 1929, and also of the Shanghai *Times* from 1907 to 1911. Dr. Ferguson reached the United States in December 1943 on the exchange ship *Gripsholm*, having been freed from a long period of internment in Peiping by the Japanese.

FERNANDO PO. See SPANISH COLONIAL EMPIRE.

FIELD MUSEUM OF NATURAL HISTORY. See CHICAGO NATURAL HISTORY MUSEUM.

FIJI. A British colony in the South Pacific, consisting of some 250 islands having an aggregate area of 7,083 square miles. Only 80 of the islands are inhabited, the largest being Viti Levu (4,053 square miles) and Vanua Levu (2,128 square miles); 220 miles northwest of the Fijian archipelago lies Rotuma (14 square miles), principal of a cluster of small islands constituting a dependency of the colony of Fiji. At the census of Dec. 31, 1944, the population totaled 246,485, comprising Fijians (113,179), Indians (113,147), mixed white and native blood (5,781), whites (5,254), Rotumans (3,363), Chinese (2,406), and others (3,355).

The governor of the colony (Sir Alexander W. G. H. Grantham assumed office Jan. 9, 1945) is also ex officio high commissioner for the (British) Western Pacific Islands (q.v.). The Legislative Council is composed of the governor as president, 16 official members, 5 white members (3 elected and 2 nominated), 5 Fijians (nominated chiefs), and 5 Indians (3 elected and 2 nominated). The 1945 budget provided for revenue of £1,369,000 and an expenditure of £1,679,000; the estimated deficit of £310,000, and any deficit in the 1944 accounts, would be covered by a surplus of £310,560 in the 1943 accounts. Local government was placed almost wholly in the hands of the Fijian Affairs Board, newly constituted on Jan. 1, 1945. The chairman was the secretary for Fijian affairs (formerly known as adviser on native affairs), and membership comprised the 5 Fijian members of the Legislative Council and a legal adviser. Major Ratu (chief) J. L. V. Sakuna, secretary for Fijian affairs, was ex officio a member of the colony's Executive Council, the first Fijian to be so seated. In 1944 the total enrolment in the 384 schools, public and private, was 30,396, the government expending £55,754 on education. At Suva (pop. 15,552), the capital, is a Central Medical School, assisted by the Rockefeller Foundation, which trains students from all British territories in the Southwest Pacific; and an associated nursing school is open to native student nurses from all the islands.

Sugar cane (50,000 acres under cultivation in 1942–43) was, for long, the principal economic crop; exports in 1943 declined to 92,528 tons, one third less than the total for 1942. The banana industry (2,000 acres) languished both in quantity and quality; and coconut plantations (130,700 acres) yielded only 17,717 tons of copra in 1943. Rubber output in 1943, however, rose to 243,946 pounds (as against 31,472 pounds in 1939). The forest area of 2,366,000 acres yielded good grades of hard and soft woods. The Fijian gold mines (Emperor and Loloma) made Fiji the third largest producer among British colonial territories. Since the departure of the American forces, which garrisoned the islands early in the war against Japan, there has been a big demand from the United States for cat's-eyes, from pethelatus shell; this has created a new industry on the Tailevu coast, where the natives, formerly poor, are gaining great wealth. Other exports include trocas shell, molasses, biscuits, pineapples, hides, coconut oil, and soap. Total exports in 1943 were valued at £1,819,054; and imports at £2,639,257, principally clothing and other textile materials, flour, and supplies for industry.

There is a 120-mile narrow gauge railroad on Viti Levu owned by a sugar company, and a highway encircles the island. Suva is a regular port of call for steamships from Canada, Australia, and New Zealand; and prior to the war with Japan it was a way station on the Pan American Airways service between San Francisco and New Zealand.

In 1941 the Fiji Infantry Regiment was brought into battle shape, and with arrival of United States forces the following year, the islanders provided labor units, food, and supplies for them. Fijian guerrillas, known to the Americans as the "South Pacific Scouts," served with the United States 14th Corps until 1944 in the recapture of the Solomons.

FINANCIAL AND ECONOMIC REVIEW. The ending of the war with Germany (May 8, 1945) and with Japan (Aug. 14, 1945)—the latter earlier than was generally looked for—brought to the

country a number of problems of the most serious kind. The first of these problems had to do with the bringing back into the pursuits of peace of some 12,000,000 persons employed in military service, and the second with the transferring to those pursuits of approximately the same number of persons that were engaged in supplying the munitions and services which the military operations required. So rapidly was the first of these problems being met in part, that it was expected that by July 1, 1946, those remaining in the military services would be reduced below 2,000,000. But the re-employment of the millions set free from military duty was a problem whose solution remained. Unemployment on a large scale, at least temporarily, could not be avoided. Estimates of the number of unemployed in the latter months of 1945 varied from 5,000,000 to much higher figures in 1946. But whatever the correct number that might remain unemployed at either of the periods indicated, the fact is indisputable that the number to be absorbed in production and trade will be of large proportions, constituting a problem of serious magnitude. It is the prevailing opinion that those freed from military service—and others as well—are rightfully entitled to find work. Private enterprise must provide such opportunity to the extent possible, the deficiency to be supplied by a limited program of public works. For private enterprise to meet this demand, time was necessary, as the major industries of the country had been for several years engaged in supplying the demand for munitions and various kinds of military equipment. They could not immediately refashion their plants for peacetime production. Unavoidably, large numbers found themselves out of work almost as soon as the war ended. Fortunately, in a number of cases—notably in the automotive industry—preparations had been made in advance for the process of reconversion so that the delay was measurably shortened.

While the war was going on, a shortage of manpower existed, but with peace an entire change took place. While unemployment was engaging the attention of the country in the autumn of 1945, in September of that year those remaining idle because of strikes was in the neighborhood of 500,000, the greatest number in recent years for any one month, with the exception of May 1943. As a rule, the stoppage of work was due to failure to secure the higher wages the employees demanded. This demand was based on increased cost of living and on the large profits which many industries had realized during the war. It is the contention of industrialists that they cannot for any long period advance wages unless they are allowed to increase the price of their products. To do so, they urge, would be to encroach on their reserves, which must be maintained in order to provide for emergencies and expansion. That improved methods of production can be relied on to meet the added cost of raising wages, they point out, has its limitations. If increased wages bring an increase in price, we are in the vicious spiral where one objective ineffectually pursues the other; or as declared by an antique authority, "he that earns wages, earns wages to put into a bag with holes." Irrespective of what may be the effect of increased wages on the cost of living, by early October the prevalence of strikes had become so widespread, and with such enormous loss to the wage-earners, to producers, business generally and the public at large, that the country reached the widely held opinion that some method of settling labor disputes less costly than strikes must be found that will insure a large degree of justice to all.

For some three and one half years the United States devoted a large part of its resources and energy to the production of goods used for destructive purposes. However necessary this may have been, it must be recognized that the net result was relative impoverishment. The country has not been made richer by the war, but poorer. And the comparative poverty thus brought about cannot be repaired by clever financial schemes of any kind, by huge and extravagant outlays, or by shortcuts of any sort. There is no easy way back to economic and financial health. The hard way—unremitting work and saving—is the only right way, however unalluring it may be. Thousands of trucks, tanks, and other forms of military equipments lie rusting away in junk-heaps, and thousands of ships that never will be used tranquilly rest at their piers. Billions in loans have been made to foreign countries with little prospect of any recovery. More than all this is the far greater loss of human life. We are much poorer by all this, but fortunately we have resources left that with wise management will enable us in time to repair the ravages of war. Though our natural resources have been heavily drawn on, they are far from being seriously impaired. Our cities have not been devastated by bombs, and our farms have not been harmed. We still have our most valued resource—the energy and resourcefulness of the American people. The full cost of the war remains to be told, but it will be upwards of $300,000,000,000, and the highest qualities of American character will be called into play to fill up the gap which this enormous outlay for destructive purposes entails.

Hardly of less concern than the problem of unemployment is that of threatened inflation. The very large purchasing power in the hands of the people will bid so sharply for a relatively short supply of manufactured goods that inflation of prices to a serious extent may ensue. Until manufacturers can convert their plants to peacetime production, and until they can get the materials they require, a relative shortage of goods must be found on the retailers shelves, and with large purchasing power bidding against this shortage, the stage is set for inflation. To meet this danger, the government is depending upon price control, a policy which will be aided if consumers will limit their purchases, for a time at least, to those articles most needed. Contributory to inflation is the deficit in the federal income, a cure for which is not immediately in sight. While federal outlays have been largely curtailed with the ending of war, demands on the Treasury continue heavy, and business urgently calls for a reduction of taxation, early proposals already having been made for a reduction of some $5,000,000,000 of the annual tax levy.

While the problems mentioned and a number of others, all due to war, continue to disturb the country, they cannot be avoided so long as the world must be periodically engaged in this costly form of destruction, involving the participation of the United States in the struggle. So stupendous has been the destruction of this most recent of world wars, that the nations of the world are now making another attempt to get rid of wars altogether, or at least to lessen the frequency and scope of their occurrence. But it is realized that pending the success of this effort there can be no abandonment of measures essential to the national defense. The costs to the United States, in men

and money, of embroilment in these conflicts, enormous and distressing as they have been, are not the only disturbing effects they entail. No question is here being raised as to the necessity of our war against Germany and Japan as the only means of assuring our own safety against the aggressions of these nations. The result has assured that safety, thus of itself justifying the outlay involved. The cost, direct and indirect, and not to be regarded as without complete justification, has been too serious to be lightly regarded. We get our safety, which is a prime consideration. But we get some other results much less satisfying. Other nations obtain additional territory and reparations in kind or in money, but we get none of these, nor even ask for them. Nor do we apparently gain much goodwill even from the countries lately our Allies. We are not only expected to assume a large share of the burden of restoring the devastated countries, but to make foreign loans, the proceeds of which may or may not be entirely devoted to this end. Such loans were made in large volume during or soon after the First World War, and very few of them were ever repaid. The prospect of repayment of any loans that may be made to the foreign countries lately engaged in the war is, if possible, less assuring than was the case when such loans were made in the earlier war. Nevertheless, this country is now regarded as the world's banker and almoner—an obligation not easily to be discharged in view of our own relative impoverishment as a major participant in the Second World War. It will have to be borne in mind that we have a very heavy obligation to those who have provided the means for prosecuting the war—a federal debt already well above the huge total of $260,000,000,000, and which in the not distant future may run considerably above $300,000,000,000, and whose service for interest and a very moderate reduction of principal will call for the outlay of several billions of dollars annually. Still, in the face of these by no means minor difficulties, we shall have to make foreign loans in no small volume, both in aid of rehabilitation of the devastated countries and in order to promote our own foreign trade. An ancient philosopher has remarked that "difficulties show what men are," and in the light of this our present difficulties offer to the American character an unexampled opportunity of displaying its mettle.

With the co-operation that the months immediately following the end of the war had not as yet revealed, this test should be fully met. To achieve this full degree of co-operation, there will have to emerge a realization that the country is not made up of various groups with special and often conflicting interests, but that fundamentally our interests are identical—a fact recognized by the Constitution of the United States, which was ordained not to promote the special interest of farmers, wage earners or industrialists, but the general welfare. This review has no concern with prophecies, but deals only with facts and apparent tendencies. As to the significance of these facts and tendencies diverse opinions exist even among those of wide information and sound judgment, some holding that a return to general and prolonged prosperity is imminent, while others take the contrary view. As tending to support the first of these views is the abundance of purchasing power in the hands of the people, the deficiency in the supply of housing and consumers' goods, and the opportunity of supplying this deficiency which will result in business activity on a large scale, to be continued for perhaps several years. Some factors tending to support the contrary view are the large number of unemployed, the controversies between employers and workers in industry, and the dislocations of various kinds which a great war unavoidably brings in its wake. Weighing these and other factors, it has to be borne in mind that the same degree of effort put forth in war cannot be expected to persist in time of peace.

In war there is the stimulus of patriotism, one of the most powerful incentives of the human mind. Furthermore, many of the activities of war are due to compulsion. Then, after an exhausting war, there is an inescapable reaction tending to less strenuous effort. So that the time has not yet arrived when we can look for the same unity and energy in times of peace which war inevitably brings with it. Our present situation, hardly less grave than when war was actually going on, may give rise to a degree of unity and co-operation hitherto inexperienced in times of peace, and thus make it possible to avoid threatened dangers. As has been said, our major resources and the character of our people remain without serious harm, constituting a reasonable reliance on future recovery and progress.

Some of the leading elements on which the foregoing survey rests are herewith presented: First, attention may be directed to the president's message to Congress, in which he said: "The largest single opportunity for the rapid postwar expansion of private investment and employment lies in the field of housing, both urban and rural. The present shortage of decent homes and the enforced widespread use of substandard housing indicate vital unfilled needs of the nation. These needs will become more marked as veterans begin to come back and look for places to live.

"There is wide agreement that, over the next ten years, there should be built in the United States an average of from a million to a million and a half homes a year. Such a program would provide an opportunity for private capital to invest from six to seven billion dollars annually. Private enterprise in this field could provide employment for several million workers each year. A housing program of this realistic size would, in turn, stimulate a vast amount of business and employment in industries which make house furnishings and equipment of every kind, and in the industries which supply the materials for them. It would provide an impetus for new products, and would develop new markets for a variety of manufactured articles to be made by private enterprise."

The director of the Office of War Mobilization and Reconversion issued the following statement: "With the collapse of Japan our preparation for reconversion was well advanced. Overnight the United States economy swung to full demobilization and expansion for peace. This abrupt change of direction brought the inevitable shock of wholesale cancellation of contracts and disemployment.

"The change in our munitions production, in terms of annual rates, goes like this:

"First half of 1945—$56,000,000,000.

"Just after V-J Day—$18,000,000,000.

"End of 1945—$8,000,000,000.

"In round numbers the human effort devoted to war production or combat will have declined by the equivalent of 10,000,000 persons in the period between Japan's surrender and the end of the year. During 1946 the equivalent of another 8,000,000 will be released.

"The Reconstruction Finance Corporation has instructed its thirty-one loan agencies throughout the country to act in co-operation with the nation's commercial banks:

"1. To finance plant reconversion and equipment or plant purchases or expansion; to finance surplus property purchases.

"2. To make loans in anticipation of settlement of war contracts.

"3. To lend money to assist veterans to finance businesses or farms.

"4. To make commitments now for loans to be made at some future date so that industry may go ahead with reconversion and expansion plans.

"5. To make an automatic guaranty of bank loans to industry up to 75 per cent of a top total of $250,000 per loan; and to participate in industry loans to any amount."

The New York *Times* figures of earnings of industrial companies for the first half of 1945 were $784,911,500, compared with $730,577,453 for the first half of 1944. In a similar comparison made in 1944, the combined net income of 331 manufacturing companies, totaling $721,554,752, which was only 4 per cent above the $691,355,626 earnings for the first half of 1943.

According to the Office of Price Administration, "In the last war from 1914 until Armistice Day, four years later, average prices rose nearly 100 per cent. Many prices rose 200, 300 and even 500 per cent above prewar levels.

"In this war, since Hitler invaded Poland, in 1939, five years ago, consumer prices have risen only 30 per cent. That's one third of the rise that we experienced during the World War One period.

"Even more impressive is the fact that three fourths of the price rise during World War Two came in the first half of the war period. Only one fourth of the price rise in World War Two has occurred in the last two and one half years."

As of mid-summer, the United States Department of Agriculture forecast the third largest food and feed output in the country's history. Based on this forecast the output promised to exceed the 1923–32 average by 21 per cent, but would be 2.5 per cent below record figures of 1942 and 1944. The forecast mentioned expected a record wheat and oats crop for 1945. As of August 8, 1945, the forecast was for a 1945 cotton crop of 10,134,000 bales, 17 per cent below the 1944 crop, and compares with an average production of 12,293,000 bales in the ten-year period 1933–44.

Federal tax collections for the fiscal year ending June 30, 1945, aggregated $43,800,387,575, or $3,678,627,343 more than for the preceding fiscal year.

A revised budget estimate as of July 1945 counted on an excess of expenditures for the fiscal year ending June 30, 1946, of $46,281,000,000, compared with an actual deficit of $53,948,000,000 in the preceding fiscal year.

ELMER H. YOUNGMAN,
Editor, Bankers Magazine, 1893–1943.

FINLAND (Suomen Tasavalta). A northern European republic, extending 700 miles from north to south, bounded north by the Petsamo region (ceded in 1944 to the USSR) and by Norwegian Lapland, east by the Soviet Union, south by the Gulf of Finland, and west by the Gulf of Bothnia and by Sweden.

From 1157 to 1809 Finland was part of the kingdom of Sweden. Then it was an autonomous grand duchy united with Russia, until December 1917, when it proclaimed its independence. This claim was recognized by the newly formed Soviet state, Jan. 4, 1918, soon afterwards by Sweden, Norway, France, Spain, Denmark, and Germany, and eventually by the other powers.

In 1918 a left Socialist democratic government supported by Finnish Red Guards was suppressed with great severity by White Guard forces led by Baron Carl Gustav Mannerheim, a former Czarist general of Swedish descent, with the help of 12,000 German troops. Many thousands were put to death, and 91 elected members of the House of Representatives deprived of their standing. The House, under the regency of Per Svinhufvud, then invited Prince Friedrich Karl von Hessen, son-in-law of Kaiser Wilhelm, to become king of Finland, but he declined. Finland became a republic in 1919, but under the forms of parliamentary democracy remained a virtual dictatorship. The army, and with it effective control of foreign policy, remained in the hands of Baron Mannerheim, and the Civic Guard, a Fascistlike, state-subsidized body of 100,000, enabled him to keep an iron hand on domestic policies. In the early 1930's the elements represented by Svinhufvud and Mannerheim further strengthened their control over more progressive forces through the Finnish Fascist (Lappo) movement. After Hitler's accession to power in 1933 the Finnish forces favorable to fascism drew the country into support of Hitler in planning his drive to the east. The powerful Mannerheim Line was built, commanding the approaches to Leningrad; airfields with a capacity far beyond the requirements of Finland's air force were established with Nazi assistance; joint plans were discussed in 1935 at a meeting called by Herman Goering, at which Finland was represented by Mannerheim.

On Nov. 30, 1939, following final rejection by Finland of Soviet proposals for exchanges of territory to secure the land and sea approaches to Leningrad, the Soviet Union launched a campaign against Finland which resulted some three months later in penetration of the Mannerheim Line and the capture of Viipuri (Viborg) by the Soviet forces. Peace negotiations opened by Finland on March 7, 1940 eventuated in a treaty by which Finland ceded to the Soviet Union the Karelian Isthmus and other territories north of Leningrad, and certain islands in the Gulf of Finland, in addition to a transit concession. Finland's appeal for aid (on the ground of preserving her independence and her neutrality) had its outcome in the discussion in France and England of a project for Allied intervention on Finland's behalf.

On June 22, 1941, when the Germans began their drive to the east, President Risto Ryti announced that Finland was again at war with the Soviet Union, this time in company with Germany and other nations. By the end of the year most of the territories ceded to the Soviet Union in 1940 had been retaken, and on December 7 the Finnish Parliament formally reincorporated them all into Finland. In the meantime the Finns had received a warning (which they rejected) from the United States, to cease fighting the Soviet Union or risk the loss of American friendship, and in the closing days of the year, the British after similar warnings, declared war on Finland.

The years 1942 and 1943 were marked by continued Finnish-German collaboration, especially in trade, a series of political crises due to the heavy costs of the war, and reiterated demands and proposals for peace. The position of the Finns, as economic and military allies of the Nazis, steadily deteriorated, and in 1944 Finland

capitulated. Under the terms of the armistice granted on September 19 by the United Nations, Finland agreed to restore the frontiers determined in the Soviet-Finnish peace settlement of 1940, but returning to the Soviet Union the Petsamo region which had been ceded by the Soviet government to Finland in 1920 and not reclaimed in 1940. But instead of the lease on the peninsula of Hangoe provided in the treaty of 1940, the 1944 armistice gave the Soviet Union a 50-year lease on the Porkkala Peninsula—commanding the Gulf of Finland at its narrowest point, southwest of Helsinki—and put certain airfields and the Finnish merchant marine at the disposal of the Allies for the duration of the war. The Finns agreed to pay the Soviet Union war reparations to the extent of $300,000,000 (half the sum Russia had asked for in April), payments to be in kind, in six annual installments; to restore appropriated Soviet property; to pay compensation for property losses of citizens of other Allied nations; and to collaborate with the Allied Nations in the apprehension and trial of persons accused of war crimes.

Area and Population.—The 1944 peace terms left Finland a gross area of about 127,593 square miles, some 11 per cent of which is inland water area. The population on Dec. 31, 1942 was 3,887,217. The three largest cities, with populations for 1939, are: Helsinki (Helsingfors)—the capital—304,965; Tampere (Tammerfors), 76,730; and Turku (Abo), 74,351. Viipuri (Viborg), formerly the third city, is in territory ceded to the Soviet Union. The Aland Islands, a group of about 300 (80 inhabited) islands between the Gulf of Bothnia and the Baltic Sea comprise a department of Finland, the data for their area and population being included in the general figures.

Government.—Legislative power is vested in the House of Representatives (Riksdag)—(200 elected members) and the President. Executive power, under the Constitution of 1919, had been vested in a president, elected for six years. The president appointed the Cabinet ministers, but was not obliged to take their advice, and controlled the direction of foreign affairs and of the armed forces. On Aug. 1, 1944, Field Marshal Mannerheim, commander in chief of the Finnish Army, was appointed president. The constitutional provision calling for election of a new president was set aside in view of the existing crisis through an amendment passed by the Riksdag; and the resolution on the appointment provided for the transfer of many former functions of the presidency to the premier, Juho K. Paasikivi.

Religion.—The national church is the Evangelical Lutheran, but full liberty is granted to those professing other faiths. At the end of 1937 (latest figures available) there were: 3,680,237 Lutherans, 70,887 Greek Orthodox Catholics and Raskolniks, 9,840 of various Protestant sects other than Lutheran, 1,755 Jews, 1,551 Roman Catholics, and 360 Mohammedans; 70,018 were not listed as members of any religious denomination.

Education.—In 1936-37 the total attendance in Finland's elementary schools was about 403,403; in the secondary schools, 50,580 (in addition to the 3,007 in the 57 people's high schools); in the 395 vocational and technical schools, providing instruction in many fields, 21,849; and in the universities (1938), 8,752—a total school attendance of about 487,591. As early as 1920 adult illiteracy had been reduced to .7 per cent. In 1937 there were 669 newspapers and periodicals in Finnish, 124 in Swedish, 83 bilingual (Finnish and Swedish) and 8 in other languages.

Defense.—In 1938 the total Finnish defense force—comprising the army, air force, coast defense, and territorial organization—included 2,012 officers and 31,000 other ranks. The air force in 1939 comprised 3 air regiments of 3 squadrons each. The naval forces consisted of a coast defense ironclad, 3 gunboats, 7 motor torpedo boats, 3 mine-layers, 5 submarines, and some smaller vessels. Military service is normally universal and compulsory, every male citizen being liable to serve from his 17th to his 60th year. Active service begins at the age of 21 and continues for one year. The Civic (or "Protective") Guards, an additional force 100,000 in number, were in respect to their command directly responsible to the president.

According to the terms of the armistice between Finland and the United Nations (September 1944), Finland agreed to restore her army to a peacetime basis within two and a half months after signing the agreement.

Resources and Products.—Although Finland's cultivated areas include only 6.6 per cent of its total land area, agriculture has been the predominant occupation, the principal crops being rye, barley, oats, potatoes, and hay. As a result of state agricultural measures, about 75 per cent of the farms have been small holdings, of from 0.5 to 10 hectares or less, owned by their users. Domestic agriculture accounts, however, for only 50 per cent of Finland's grain consumption. Because of the lack of labor, horses, and tractors, actual areas cultivated were estimated in 1944 at 34 per cent less for root crops, nearly 12 per cent less for oats and hay, and slightly less for bread and potatoes. Insufficient cultivation and the scarcity of fertilizers resulted in average and total yields that were smaller than in 1943. Stock raising and dairying are important, butter and eggs being normally exported in quantity. The forests, covering 73.4 per cent of the total land area, accounted for 44 per cent of Finland's industrial production, employed 45 per cent of the country's industrial workers, and comprised 80 to 90 per cent of its prewar exports. The most important products are timber, lumber, plywood, pulp, pulp board, and paper. Production of paper, pulp, and cellulose are reported to have shown large increases during 1943, largely to the advantage of Germany. The mills were worked at capacity and the machinery left practically worn out at the end of the war. The country's felling program for the lumber year 1945–46 called for the cutting of 52,000,000 cubic meters of wood, 54 per cent for firewood, 21 per cent small round timber, and 25 per cent heavy logs for lumber. This program exceeded any previously planned output, but the situation demanded extraordinary efforts. The demand was heavy, and industrial stocks of lumber were about 50 per cent below normal. Of the mineral products, copper is produced at Outokumpu. Granite of good quality, and limestone and dolomite are available for the production of lime and cement. Petsamo, with its nickel mines, was returned to the Soviet Union by the armistice of September 1944, forestalling future discussion of an agreement (reported April 1944) under which the Germans, who had been permitted by the Finns to work the Petsamo mines since the beginning of the war, had planned to continue to do so for the next 20 years. Industrial operations in 1944 were on the whole about the same as in 1943.

Finland's water power, derived from many river rapids, has been only partly developed.

Co-operative organization plays an important part among farmers and dairymen, and among consumers in city and country.

Finance.—Finland started its independent existence free from debt, because it did not take over any part of Czarist Russia's national debt, and had remained during the First World War practically neutral. Its so-called "war debt"—of which it paid $250,000 annually to the United States until the severing of diplomatic and economic relations at the end of June 1944—was not really a war debt, but a debt for some $9,000,000 worth of supplies received during the relief period after the armistice of November 1918.

Between 1940 and 1941 Finland's annual expenditures jumped from 5,105,594,000 marks to 31,000,000,000, and were expected in 1943 to reach a total for the year of 28,000,000,000 marks, of which 19,000,000,000 were attributable to direct war costs, with additional indirect war costs still to be taken account of. Total anticipated ordinary government revenues for 1944 were estimated at 15,530,000 marks, and expenditures at 29,000,000 marks. By the end of the first quarter of 1943 the public debt had reached 40,000,000,000 marks.

Foreign Trade.—Finnish foreign trade in 1944 was estimated at 15,000,000,000 Finnish marks, a considerable decline from the 1943 total of 21,593,100,000 Finnish marks. The value of imports during the year declined by 30.8 per cent, to 8,919,600,000 Finnish marks, while exports declined in value by 24.5 per cent, to 6,580,000,000 Finnish marks.

Communications.—Before the Soviet-Finnish war of 1939–40 Finland had over 39,700 miles of roads, more than half of which were of high class, and over 5,000 miles of 4.99-foot gauge railway, nearly all state owned. Finland's prewar system of lakes, connected with each other and with the Gulf of Finland by canals, had a total navigable length of about 3,000 miles and a floatable length of nearly 29,000 miles. The merchant fleet on April 1, 1938, comprised a total of 850 vessels, with a gross tonnage of 609,823, but by the end of 1941 over 40 per cent of this tonnage had been lost in the war.

Post offices in 1937 numbered 3,624. The telegraph system and the greater part of the telephone system are state owned.

Principal Events, 1945.—Finland entered the year with profound anxiety, but, as the months passed by, it became increasingly clear that defeat and virtual control by Soviet Russia meant neither national obliteration nor enslavement nor bolshevization for the little northern country. The road back to prosperity and international prestige looked long and hard to the Finns, but none of the ultra-pessimistic forebodings of the time of the armistice materialized.

Perhaps for the first time, a majority of the nation realized that Finland's future was predicated upon good neighborship with Russia. Relations between the two countries developed more smoothly than anyone had expected and by the end of January foreign correspondents visiting Helsinki were able to report that Russia's conduct under the armistice was "correct," and that there had been no conflicts (at least relatively few) between the Soviet forces of occupation and the Finnish population. Commercial exchanges, too, developed favorably, Finland receiving substantial shipments of cereals, sugar, and other foodstuffs from Russia, in return for Finnish deliveries of wood products, copper and other metals, made in addition to the reparations stipulated by the armistice. A formal trade agreement, providing for an exchange of goods valued at $17,000,000 between Finland and the Soviet Union was signed on May 14.

There were, nonetheless, differences that troubled Finnish-Russian relations in the early part of the year, mainly as a result of divergent interpretation of armistice clauses. Russia complained repeatedly that paramilitary organizations such as the powerful Civic Guards were not being dissolved as provided for in the armistice and that the prosecution of war criminals was lagging. By the end of the summer, Finland had complied in the matter of disbanding all "Fascistic" and "anti-Soviet" organizations, but the controversy about war criminals was still going on. Premier Juho K. Paasikivi and most of his Cabinet colleagues felt that such men as former President Risto Ryti, former Premier Johan W. Rangell, and former Minister of Commerce Väinö A. Tanner, though burdened with heavy political responsibility, could not be punished legally as war criminals. This was also the upshot of a lengthy report rendered in July by the so-called "Hornborg Committee" of the Finnish Diet, which had been assigned to investigate the war guilt of the former statesmen and political leaders. However, Ryti and Rangell were eliminated from the leading posts they had held in the Bank of Finland, and Tanner was gradually squeezed out of his hitherto dominant position in the Social-Democratic Party; other alleged war criminals were likewise removed from influential positions in the administration, business, or political life.

On March 3, Finland formalized the state of war with Germany which had existed in actual fact since September 1944. By that time, the German forces had been cleared almost completely from Finnish soil, but a few isolated groups of mountain troops continued to hold out in the long neck of Finnish territory between Norway and Sweden right up to the German surender in May. Thus Finland was, technically at least, still a belligerent country when her 2,000,000 eligible voters were called to the polls on March 17 and 18 in the first free general election held in Europe since the start of the war. Participation was heavy—about 75 per cent—with 1,497,533 votes cast. The results of the election were in line with what had been expected but the swing to the left was moderate, bearing testimony to the absolute freedom and honesty of the poll. Finns and foreign observers alike agreed that there had been no outside interference except for a certain moral pressure exercised by the Soviet press and by a broadcast warning from Premier Paasikivi that this was Finland's last chance to straighten out her tangled relations with Russia. The final count showed 368,201 votes for the Social-Democrats, 358,988 for the newly formed Popular Front (in which the Communists were predominant), 244,384 for the Agrarian Party, 132,530 for the Swedish Party and 121,733 for the Coalition Party (Right), the rest of the votes going to various small groups of the center and right. Out of the 200 seats in the Diet, 52 were retained by the Social-Democrats (as against their previous 85), while the Popular Front won 51; this left 97 seats for the parties of the center and the right. The small Finnish Nazi Party (IKL) had been excluded from the poll.

In accordance with Finnish parliamentary tradition, Premier Paasikivi and his Cabinet resigned on April 9 after the new Diet reconvened. At the request of President Mannerheim—who did

not step down after the election as had been widely forecast—Paasikivi formed a new government which made its debut on April 17. The revamped Cabinet reflected the new political situation created by the election: out of 18 posts, 10 were given to the parties of the left (including 3 Communists and 3 left-wing Socialists) and 8 to the center and right. Carl J. Enckell, a member of the Swedish Party, remained as foreign minister and the Communist leader Yrjoe Leino was named minister of the interior; the portfolio of education went to Johan Helo, another top leader of the Popular Front.

With a Communist in control of the police department, the purge of pro-German elements in the country was speeded up. On July 4, Leino startled the Diet with the disclosure of an alleged military plot to overthrow the present regime. He specifically accused the General Staff of having organized the hiding of arms and ammunition in secret depots all over the country in flagrant violation of the armistice. Following these revelations, a score of high army officers and some 200 other persons were arrested. The commander in chief of the army, Gen. Axel E. Heinrichs, was forced to resign; his post was taken over by Lieut. Gen. J. Lindquist. Apparently in connection with this affair, a thousand White Russian émigrés who had lived in Finland since 1917 were arrested for deportation to the Soviet Union in mid-July.

Finland's international position was greatly improved in the second half of the year. Following the Big Three Conference in Potsdam, which showed a tendency to deal leniently with Finland and other former Axis satellites, the Allied Control Commission in Helsinki announced on August 5 a general easing of the conditions under which Finland had been living since the armistice. Among other concessions, the Finns regained freedom of movement for their ships, both merchant vessels and men-of-war, and for their aviation; Turku and Kotka airfields were returned to Finnish control. Moving swiftly after the announcement made at the Potsdam Conference that each of the Big Three would examine separately the re-establishment of diplomatic relations with Finland, the Soviet Union on August 6 informed Washington that it had resumed diplomatic relations with Finland. On August 19 the United States recognized the new Finnish government and agreed to a resumption of diplomatic relations. In making the announcement, Secretary of State James F. Byrnes stated that, after having studied all available reports, the United States government had reached the conclusion that the Finnish elections of March 1945 had been freely conducted and expressed the democratic wishes of the Finnish people. On August 31, it was announced in Helsinki that Kalle T. Jutila had been appointed minister to Washington and Eero A. Vuori would be sent to London in the same capacity. In September, the Foreign Ministers' Council of the Big Five took up the question of a peace treaty with Finland during its first meeting in London. A treaty draft prepared by the Soviet delegation was adopted in principle by the other powers.

In September, the Finnish Diet, yielding to strong Russian pressure, passed a bill instituting special courts for the trial of alleged "war responsibles." On November 15, the trial of eight former government leaders, including Ryti, Rangell, and Tanner, opened at Helsinki; it was not concluded by the end of the year. Apparently in protest against the indictment of his former associates, President Mannerheim, who had been ill, departed for Portugal on November 4; Premier Paasikivi took over the functions of the president.

FIRE INSURANCE. See INSURANCE.

FISH AND GAME PROTECTION. See FOREST SERVICE, UNITED STATES.

FISH AND WILDLIFE SERVICE. As custodian of the nation's rich and renewable wildlife and fishery resources which made valuable contributions to the war, the Fish and Wildlife Service of the United States Department of the Interior presents the following condensed report on its custodial activities during the fiscal year which ended shortly before V-J Day.

The most extensive controlled experiments ever undertaken as to the effects on wildlife of DDT, the war-developed insecticide, were begun at the service's Patuxent Research Refuge at Bowie, Md. DDT is not a selective poison and, under certain conditions, may kill a great variety of animal life, including birds, reptiles and amphibians. The experiments at Patuxent are being conducted in co-operation with the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture to appraise the biological consequences of applying DDT and to establish safe methods for its use. (See under AGRICULTURAL RESEARCH ADMINISTRATION.)

From service hatcheries a total of 5,740,067,985 fishes and fish eggs valued at approximately $3,000,000 were released in the nation's streams, lakes and salt waters. During the past year a program of stocking waters near government hospitals with legal-sized fish afforded immediate recreation for convalescing war veterans.

A nation-wide system of wildlife refuges provided haven during some part of the year for at least one-fourth of the migratory waterfowl in North America. In addition to protection given many other forms of wildlife, the cultivation of refuge lands during the past year produced 555,143 bushels of grain, and other crops. Livestock grazing to the extent of 308,582 animal months was provided, 18,057 tons of hay harvested, and 222,421 fur animals trapped. Revenue from economic use on national wildlife refuges totaled $275,555 during the past year.

The number of banded birds reported during the year was 142,569, of which 31,113 were migratory waterfowl. The grand total since the inception of the work under government auspices is in excess of 5,800,000. Recovery records to the number of 14,757 were obtained during the year, bringing the total number of these data to 346,243.

The appropriation of $900,000 to carry on the Federal Aid to Wildlife Restoration program during the year was the lowest made to date. Shortages of personnel, equipment and materials impeded the accomplishment of planned work by the states. Despite limited co-operative funds and other impediments, the program work continued to function satisfactorily on a reduced scale. The special Federal Aid to Wildlife Restoration Fund in the United States Treasury contained almost $11,000,000 on June 30, 1945.

The 65 United States game management agents, working singly or in co-operation with state officers, obtained 2,328 convictions, fines and costs of $80,685.72 and jail sentences of 964 days. Undercover operations cost $247.36 and resulted in the conviction of two persons, one of whom was fined $500 and sentenced to 6 months in jail. Wildlife protection problems in Alaska multiplied in proportion to the increase of men

in the armed forces and in war construction work. The waterfowl control program in California proved highly successful in abating damages to agricultural crops. In other depredation areas game agents worked closely with farmers in frightening ducks from unharvested crops.

Control of predatory animals and injurious rodents resulted in estimated savings of $27,000,000 in livestock, farm products and stored foods. These federal-co-operative operations during the year resulted in the taking of 112,451 predatory animals, of which 102,979 were coyotes, 1,365 wolves, 7,325 bobcats and lynx, 163 mountain lions and 619 stock-killing bears. To protect crops and range forage from destruction by field rodents, 11,478,829 acres of rodent-infested lands were treated, and 596,635 premises were treated to control the common house rat.

Fresh-water anglers fishing for food, as well as for recreation, brought $9,857,229 in revenue to the 48 states and Alaska from the sale of 7,846,168 fishing licenses during the fiscal year ended June 30, 1944. During the same period hunters spent $13,547,152 for 7,505,258 hunting licenses. Greater interest was manifested in the hunting of waterfowl by the sale of 1,426,932 "duck stamps" reported as of March 31, 1945, an increase of 257,580 over the previous year.

In 1944, Alaska fishery products totaled 331,135,017 pounds, as prepared for market, with a wholesale value of $63,270,100. Catches of fish and shellfish amounted to 561,198,897 pounds for which the fishermen received $20,413,525. Since the purchase of Alaska in 1867, through 1944, the fisheries of the territory have yielded products valued at $1,481,104,110.

During the year two public auction sales of government fur seals from the Pribilof Islands were held in St. Louis. On Oct. 9, 1944, 22,393 dressed and dyed skins and 169 unfinished skins were sold for $823,500.75; on April 9, 1945, 22,682 dressed and dyed sealskins and 4 confiscated skins were sold for $811,992.75.

Many birds and mammals which frequent the open sea, oceanic islands, and seashores have been adversely affected, according to reports received by the service, by oil-slicks on the surface of the oceans. Sea birds, especially, have suffered, great numbers perishing from the effects. Some of the smaller islands in the Pacific Ocean used for nesting by sea birds have been so changed by the war that many species of birds have been considerably diminished in numbers, and at least one, the Laysan Island rail (*Porzanula palmeri*), formerly found on Laysan Island and later on Midway, has probably become extinct because of these changes. Whales, likewise, have diminished, anti-submarine measures having inadvertently caused the death of many of them.

EDNA N. SATER,
Division of Information, Fish and Wildlife Service.

FLAXSEED. A banner crop of flaxseed for the United States was indicated in the October 1 estimate of the Department of Agriculture, which placed the 1945 crop at 35,648,000 bushels as compared with the 1944 crop of 23,527,000 bushels and the 1934–43 ten-year average crop of 21,684,000 bushels. Minnesota led with a production estimated at 12,375,000 bushels in 1945, closely followed by North Dakota with a yield estimated at 12,328,000 bushels. South Dakota was the next largest producer with an estimated crop of 4,785,000 bushels.

FLEMING, SIR (John) Ambrose, English electrical engineer: b. Lancaster, England, Nov. 29, 1849; d. Sidmouth, Devon, England, April 19, 1945. A pioneer in the applications of electrical science, Sir Ambrose Fleming contributed to the development of the telephone, electric lighting, and wireless telegraphy. He was the inventor of the thermionic valve, an important instrument used in wireless telegraphy. Sir Ambrose was educated at University College, London, the Royal College of Chemistry, and St. John's College, Cambridge University. In 1879 he served as scientific adviser to the Edison Telephone Company; from 1882 to 1894, with the Edison Electric Light Company; and later with the Edison and Swan Company. From 1885 to 1926 he was professor of electrical engineering at University College, and he also held the post of lecturer on applied mechanics at Cambridge University. He designed the wireless signal apparatus of the Marconi station in Cornwall, England, from which the first transatlantic message was transmitted in 1901. In 1904 he made the first form of the thermionic valve, one of the ancestors of the vacuum tube, which could receive or "rectify" a radio signal from space and thus make it audible to the human ear.

The recipient of many honors, Sir Ambrose received the Hughes Medal of the Royal Society in 1910, and the Albert Medal of the Royal Society of the Arts in 1921. He was president of the Victoria Institute and Philosophical Society of Great Britain in 1927, and was knighted in 1929. He was the author, among other works, of *The Principles of Electric Wave Telegraphy and Telephony* (1906); *A Manual of Radiotelegraphy and Radiotelephony* (1908); *Fifty Years of Electricity* (1921); *Memories of a Scientific Life* (1934), and editor of and contributor to the 10th and 11th editions of the *Encyclopedia Britannica.*

FLORIDA. South Atlantic state, United States; admitted to the Union March 3, 1845. Population (1940): rural, 851,623; urban, 1,045,791; total, 1,897,414. Land area, 54,262 square miles, divided into 67 counties. Chief cities, with 1940 populations: Jacksonville, 173,065; Miami, 172,172; Tampa, 108,391; Saint Petersburg, 60,812; Pensacola, 37,449; Orlando, 36,736; West Palm Beach, 33,693; Miami Beach, 28,012; Daytona Beach, 22,584; Tallahassee, the capital, 16,240.

Chief State Officers, 1945.—Governor, Millard Caldwell; secretary of state, R. A. Gray; treasurer, J. Ed Larson; comptroller, J. M. Lee; attorney general, J. Tom Watson.

Judiciary.—Chief justice of the Supreme Court of Florida, Roy H. Chapman; associate justices, Rivers Buford, Armstead Brown, Alto Adams, Harold H. Sebring, Glenn Ferrell, Elwyn Thomas.

Legislature.—The state legislature (Senate, 38 members; House of Representatives, 95) convenes biennially in odd years, on the first Tuesday after the first Monday in April.

Education.—Public elementary school departments (1943–44)[1], 1,750; elementary school teachers and departmental staff members, 7,695; pupils (grades 1-6), 247,089. Public junior high schools (1943–44), 393; students (grades 7-9), 89,732; public senior high schools, 264; students (grades 10-12), 52,855; junior and senior high school teachers and other staff members, 5,087; average yearly salary of elementary, junior and senior high school teachers and other staff members, $1,340. Education in Florida is compulsory for children between the ages of 7 and 16, inclusive. Total state funds ap-

[1] Latest school year reported.

propriated or allocated to institutions of higher learning (1943–44), $2,359,906. Superintendent of public instruction, Colin English.

Finances.—The following statement of finances for the fiscal year 1944–45 was supplied by J. Edwin Larson, state treasurer:

Balance in treasury, beginning of fiscal year 1944–45	$ 32,458,533.99
Receipts, 1944–45	106,854,535.48[1]
Total	$139,313,069.47
Disbursements, 1944–45	104,034,600.98[1]
Balance, beginning of fiscal year 1945–46	$ 35,278,468.49

[1] These figures do not include off-setting debits and credits (transfers between funds).

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1, estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	7,250	7,190	6,830
Oats (1,000 bu.)	154	400	432
Pecans (1,000 lb.)	3,288	5,100	4,307
Peanuts (1,000 lb.)	52,926	72,800	72,800
Sweet potatoes (1,000 bu.)	1,308	1,400	1,350
Tobacco (1,000 lb.)	14,150	20,008	19,310
Potatoes (1,000 bu.)	3,722	3,445	5,112
Oranges (1,000 boxes)	26,920	42,800	50,000
Grapefruit (1,000 boxes)	20,070	22,300	32,000
Pears (1,000 bu.)	136	176	157
Grapes (tons)	635	600	600

FLUORSPAR. The fluorspar industry made another creditable showing in 1944, according to the United States Bureau of Mines. Production of finished fluorspar from domestic ore was 413,700 short tons in 1944, an increase of 2 per cent over 1943. Shipments from mines in 1944, amounting to 411,801 short tons, were 2 per cent greater than in 1943, the previous record year. Although its shipments declined 11 per cent from the all-time high of 1943, Illinois not only maintained its rank as the chief producing state in 1944 but supplied 43 per cent of the total shipments. Stocks of finished fluorspar at mines and consumers' plants totaled 117,501 short tons on Dec. 31, 1944, compared with 124,959 tons on Dec. 31, 1943. Consumption of fluorspar reached an all-time high of 410,170 short tons in 1944, compared with 388,885 tons in 1943.

During the first eight months of 1945 inclusive, the production of finished fluorspar was 236,881 short tons; shipments from mines during the same period amounted to 239,487 tons; and consumption reached 265,696 tons.

FLYING. See AERONAUTICS.

FOOD AND DRUG ADMINISTRATION. The enforcement of the Federal Food, Drug, and Cosmetic Act was directed during the entire war period to the maintenance of the integrity of the nation's food and drug supplies in the face of production conditions inviting a relaxation of controls. The program was carried out by the observation of factory conditions and methods of processing and handling products, the examination of representative samples, and by appropriate legal actions.

Foods.—An intensified effort to prevent the inexcusable loss of food through exposure to insect and rodent contamination characterized the regulatory work. The fitness of raw materials, the sanitary conditions of factories, and the protection given to finished products during transportation and storage all received attention. A fringe of the food industry requires constant surveillance because of carelessness or indifference to the obligation to produce wholesome food in clean factories. Much of the food seized in 1945, however, became filthy through storage infestation by rodents and insects after it had reached its destination in good condition. Filthy food seizures increased by 50 per cent in 1945.

Deleterious chemical substances were present in most of the foods seized on health charges. The largest number of seizures resulted from the use of chemicals to check decomposition, which would have been unnecessary had proper sanitation been maintained.

Deliberate attempts of a minority of food manufacturers to make illegal profits by deliberate cheats were suppressed by regulatory activities before the frauds gained sufficient momentum to undermine honest merchandise. Among the economic cheats seized in 1945 were foods with mineral oil substituted for cooking fat, chocolate products containing cocoa shells, debased maple and cane sirup, artificially flavored and colored "fruit-juice" beverages, and sauerkraut packed in excess brine. Major attention was given to compliance with official standards of such foods as butter, oleomargarine, cheese, canned fruits and vegetables, and jams and jellies. Other seizures on economic charges were based on short weight and deceptive packaging.

Drugs.—While the year was happily free of tragedies caused by errors in drug manufacture, seizures of violative drugs were about 80 per cent higher in number than those of 1944. Charges were fairly evenly divided between violations of official or labeled standards and false and misleading therapeutic claims. Most of the substandard official drugs were injection solutions containing undissolved particles, and surgical dressings that were not sterile. Deficiency in active ingredients was the principal violation in unofficial drugs failing to meet labeled standards; others were below requirements for purity, packaging, and labeling. The 1945 court actions involved the lowest percentage ever encountered of products claiming to cure or alleviate serious diseases, such as diabetes and cancer, which might result in fatal consequences if competent medical treatment were delayed while trials were being made of worthless "remedies."

Legislation.—For the first 2 years of the commercial production of penicillin, every batch distributed to the army and navy and that allotted to civilian physicians was pretested under a wartime plan devised by the War Production Board, with the concurrence of military authorities. This antibiotic drug, which is produced by a biological process that occasionally fails to produce uniform results, must be of the expected potency for successful use by physicians who depend upon it in cases of extreme illness. Because of its public-health importance, the Federal Security Administrator recommended to Congress an amendment to the Food, Drug, and Cosmetic Act that would provide for the continuance of pretesting after the removal of emergency controls. The penicillin amendment, receiving the full support of industry and scientific groups, was enacted in July 1945, after a unanimous vote by the Congress.

Regulation-Making Activities.—Changes in food standards in 1945 included the promulgation of definitions and standards for cacao products, identity standards for macaroni and noodle products, a fill-of-container standard for canned oysters, and an amendment to the identity standard for canned asparagus. An amendment to the identity stand-

ard for cream cheese to increase the permissible amount of moisture was refused.

Changes in the drug regulations designed to limit the prescription legend to drugs requiring medical direction were promulgated, effective as of Oct. 10, 1945. This change became necessary because of the misuse of the prescription legend in lieu of adequate directions and warnings on drugs suitable for use by laymen. Amendments were made also to regulations for new-drug applications.

Other regulations promulgated in the fiscal year included a tolerance for fluorine remaining as spray residue on apples and pears, tea standards, and amendments to sea-food plant inspection regulations.

Work for the War Agencies.—In addition to enforcing requirements for clean factories and warehouses and adequate processing controls, which is a type of regulatory work performed for all consumers of foods and drugs, the Food and Drug Administration undertook some enforcement work at the direct request of the war agencies. This included tests for compliance with specifications of all drugs purchased by the army, as well as of certain foods requiring specialized laboratory techniques for the examinations. In addition, scientific investigations were made at the request of the war agencies of the toxicity and efficacy of numerous preparations urgently needed in the prosecution of war.

Enforcement Statistics.—A total of 3,527 seizure, criminal prosecution, and injunction actions in the federal courts, based on 6,022 violative shipments, resulted from the examination of 46,959 official samples. These comprised seizure and prosecution actions on 2,665 foods, 117 vitamins and foods for special dietary use, 689 drugs, 20 cosmetics, and 1 caustic poison, and 35 requests for court injunction to restrain further violative shipments.

The highest fine imposed in the criminal prosecution cases terminated in 1945 was $18,000. Fines exceeded $1,000 in 44 cases and 26 defendants convicted of violations received jail sentences averaging 6 months in length. Half of these were suspended and the other 13 were actually served or are still being served with sentences varying from 7 days to 3 years.

Imported foods, drugs, and cosmetics examined totaled 19,549, of which 4,955 were in violation and were refused entry.

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FOOD RESEARCH. The end of the global war brought with it a wave of optimistic predictions in the food field. The literature of the few preceding months was filled with descriptions of new and better raw foods, better processing devices, novel food combinations. These were for the most part in the experimental stage, but the promise of better things to come was unmistakable.

Electronic Heat.—This device for the rapid and uniform heating of food and other products as opposed to surface applications of heat, is finding numerous applications in the food field. It seems firmly established as an economical and highly efficient method of sterilizing cereals and other packaged dry foods. Almost as promising is the reported improvement in dehydrated foods brought about by the reduction of moisture content to 1 per cent or less through use of electronic heat. Frosted foods in large containers can be thawed rapidly and without the deterioration accompanying normal defrosting. Thus, 30 pound cartons of fruit normally require 20 hours to defrost, but only 15 minutes in the dielectric oven.

Experiments were underway in the fall on the use of electronic heat for the pre-blanching of vegetables for freezing. The vegetables, packaged raw, are then blanched in the package and frozen immediately. The new process promises to cut down on nutritive losses which occur during the hot water or steam treatment which now precedes freezing, as well as to eliminate bacterial contamination during the cooling and filling of the packages.

Use of electronic heat in household cookery will probably not be an immediate postwar development. While many foods may be cooked by this method with excellent results, a number of problems were encountered, particularly with asymmetrical foods. Oysters, for example, heat most rapidly in their thickest part and may actually carbonize there before being completely cooked in thinner sections. Even more serious than these technical difficulties, is the prohibitive cost of installation of the device in the ordinary home, due to the necessity of high voltages for the operation of power tubes.

The Future of Dehydrated Foods.—Developed in such large quantities during the war period because of their ease of transportation, the future of dehydrated foods is open to question. Improvements in drying procedures have undoubtedly produced some outstanding new dehydrated products which are probably here to stay. Among these is the dehydration of frozen foods; i. e. the food to be dehydrated is first frozen, then dehydrated in a high vacuum, causing the ice to sublimate. The product is thus rendered bone dry without ever being exposed to high temperatures or oxygen. When rehydrated it is hardly distinguishable from the fresh material. Foods successfully dehydrated by this process include orange juice, whole oysters, clams, fish fillets, raw meats, berry juices, tomato products, coffee, milk and eggs.

Dehydrated apple nuggets, prepared by compression prior to vacuum dehydration, are one of the armies' most popular dehydrated products. Pear, cherry, pineapple and peach nuggets are forecast for the near future.

Canned Foods.—Such foods may be expected to show great improvement if recent heat penetration discoveries can be widely applied in the future. Such nonacid foods as vegetables, milk and meat products are at present heated for very long periods at high temperatures in order to sterilize the contents of the can. The time required for destruction of bacterial spores at the high temperatures of the pressure canner is only a small fraction of the actual processing time employed. Most of the long process is necessary because of slow heat penetration to the center of the can. A new engineering device has been described whereby can contents may be heated uniformly and very rapidly to the necessary high temperatures. The cans are rotated rapidly around the cylindrical axis during the heat processing. This effects continuous removal of the film of insulating material which ordinarily forms on the inside of the can, and gives efficient mixing of the contents. Green peas in No. 2 cans require 35 minutes at 240°C. to render them safe by ordinary processing methods, but only 3½ minutes if the cans are rotated. The processing time for canned milk is now 1 hour (counting the heating and cooling period); this is reduced to 2 minutes by the new method. Great saving in nutrients and elimination of undesirable overcooked

flavor and texture result from the greatly reduced processing times.

An endless variety of new canned products have been promised by the canning industry. Already in commercial production or ready for production in the near future are canned fish loaves, whipped cream, a variety of sandwich spreads, potato and fish salads, jellied fruit and vegetable salads using low-methoxy pectins, french fried onions, baked and sliced apples, many fruit juice combinations, and jams, jellies and dessert fruits from hitherto little-known tropical fruits.

Of such tropical fruits, the *guava* has probably been most thoroughly investigated because of its remarkably high vitamin C content. Average value obtained from a large number of guava varieties by the California Experiment Station was 200 mg. vitamins C per 100 grams of fruit. Some varieties averaged as high as 500 mg. This compares to an average value of approximately 60 mg. for citrus fruits, generally accepted as our best common source of vitamin C. Experimental plantings of guavas have been made in California. The fruit is very acceptable in flavor, has a high pectin content, and may be successfully canned as a pie fruit, made into jellies or jams, or blended with other fruits in the preparation of juices and nectars for various purposes.

The Market Life of Fresh Fruits and Vegetables.—Some recent discoveries will greatly prolong the market life of fresh fruits and vegetables in the future. It has been known for several years that respiratory activity and loss of water by transpiration could be reduced greatly in many fruits and vegetables by spraying them with a wax coating. Shrivelling, vitamin losses and decay are greatly retarded by such pretreatment. It has been estimated that about 25 per cent of our citrus fruits, 80 per cent of tomatoes grown in Texas and Florida as well as a large proportion of cantaloupes, cucumbers and bell peppers are now protected in this manner before shipping. The wax coat makes the fruit look more glossy, but is otherwise not detectable.

Highly perishable fruits such as fresh figs and berries are protected from mold development by dipping or spraying with a solution of propionates. The preservative action of the propionic acid and its salts was discovered several years ago, but new applications have continued to appear at intervals. Penicillin and related compounds also await investigation as food preservatives, when the supply can be brought in line with present demands of the medical profession. Penicillin is known to inhibit bacterial growth even in minute concentrations, while at the same time it is nontoxic to human beings.

Shortening.—Fats for shortening and other cookery purposes will be far better adjusted to their intended use when the available supply becomes great enough to allow manufacturers a free hand in applying the results of recent research to the manufacture of blended shortenings for specific uses. The emulsified type of shortening which owes its emulsifying ability to small amounts of mono- and diglycerides, has already established itself. Extension of the plastic range of hydrogenated shortenings has been effected by proper control of hydrogenation and blending. Hydrogenated shortenings in the past have tended to be quite brittle at cold temperatures and soft at higher temperatures. A shortening recently developed for the army is workable at 60°F. yet still firm enough to hold its body at 120°F. The keeping quality of lards has been greatly extended by the use of antioxidants to prevent rancidity. Four such antioxidants have been given official approval for use in fats—gum guaiac, lecithin, nordihydroguairetic acid and tocopherols. This development has allowed the production of bland lard from which all objectionable odor and flavor has been removed (formerly not manufactured because of its poor keeping qualities).

Vitamin Investigations.—Factors influencing the vitamin content of both plant and animal tissues have been widely investigated. Very wide varietal differences have been found in the vitamin content of plants. Strains of tomatoes have been found containing thirteen times as much beta-carotene (provitamin A) and four times as much vitamin C as the average of established commercial varieties. Great improvements in the vitamin content of common garden vegetables may be expected through selection and hybridization. On the other hand, soil type and fertilizer seem to have little effect on vitamin content, but may profoundly affect mineral content.

Hog feeding experiments have demonstrated conclusively that the thiamin (vitamin B_1) content of the meat is greatly influenced by the amount of thiamin in the diet. Extra dietary thiamin is stored rapidly in the muscles of the pig and retained well.

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FOOTBALL. See SPORTS.

FOREIGN AFFAIRS. See WORLD POLITICS.

FOREIGN POLICY ASSOCIATION. A research and educational organization founded in 1918 to increase the interest and understanding of American citizens in international affairs. It has headquarters at 22 East 38th Street, New York City. Gen. Frank R. McCoy is president, and Miss Dorothy F. Leet is secretary. The membership of the organization is about 30,000. Approximately 233 meetings were held in New York and other cities having branches of the association in 1945, attendance totaling over 78,000. Seven new branches were added during the year.

The association publishes *Foreign Policy Reports;* a weekly *Foreign Policy Bulletin,* containing a Washington News Letter, and a *Headline Series* for use in schools and colleges. Among the speakers in 1945 were President Harry S. Truman, James B. Conant, Herbert Hoover, Joseph C. Grew, Will Hays, Miss Craig McGeachy, John Foster Dulles, Sir Bernard Pares, and Mrs. Anne O'Hare McCormick.

FOREST SERVICE, United States. The Forest Service was established in the United States Department of Agriculture in 1905, having been formerly the Division of Forestry (1881) and the Bureau of Forestry (1901). It is charged with the responsibility for promoting the conservation and best use of the nation's forest lands, aggregating nearly one-third of the total land area of the United States. It has its headquarters in Washington, D. C., with 95 per cent of its 7,000 permanent employes located in field stations. In 1945 some 1,825 of its yearlong personnel were on furlough for service with the armed forces. Chief of the Forest Service is Lyle F. Watts, who succeeded the late F. A. Silcox, Jan. 8, 1943. The service maintains 10 regional offices, a listing of which may be found in THE AMERICANA ANNUAL for 1941.

National Forest Area.—On June 30, 1944, the Forest Service was administering 178,940,283 acres of national forests, purchase units, and experimental areas in 42 states and in the territories of Alaska and Puerto Rico. During the war, more than a million acres of national forest lands were made available through co-operative agreements to the army and navy for military reservations, maneuver areas, artillery ranges, and proving grounds.

Purchase of land for additions to the national forest system under authorization of the Weeks Law of 1911 were practically suspended during the war. Since the beginning of the national forest purchase program in 1911, the total net area acquired to June 30, 1943, was 18,206,895 acres, costing $68,589,185. The bulk of the national forest system is composed of lands reserved from the public domain.

Forest Management.—More national forest timber was harvested during the fiscal year 1944 than in any one previous year. Timber cut under sales to commercial operators totaled 2,821,339,000 feet board measure. Receipts collected for sales of timber were $12,398,918. In addition, forest products not convertible into board feet were sold, valued at $152,968. More than a hundred million feet of timber, including dead and down trees, was given away under free permits. Although timber sales to help meet wartime needs in some cases resulted in cutting beyond the planned yearly cutting budget, the Forest Service adhered to its policy that all logging in the national forests must be in accordance with methods which provide for future timber growth on the area logged.

Planting.—In 40 years the national forest area successfully planted, including replantings, has totaled 1,214,706 acres. Because of labor shortages, reforestation work was greatly curtailed during the war years. The 24 nurseries operated by the Forest Service were largely on a maintenance basis in 1945. Their normal capacity is more than 150,000,000 trees annually.

Grazing.—The grazing of domestic livestock on national forest ranges is an important factor in the nation's production of meat, wool, and hides. About 85 million acres in these forests are open to grazing and are used by ranchers and farmers in connection with some 265 million acres of crop-producing and range lands in private ownership. The private holdings dependent upon seasonal use of national forest range represent livestock and ranch investments conservatively estimated at more than $300,000,000.

Grazing privileges are allotted by the Forest Service under a permit system with emphasis on wise and conservative range management which protects and improves forage, timber, and watershed values. During 1944 approximately 1,300,000 cattle and horses and 4,700,000 sheep and goats, not counting young stock, were permitted to graze on the national forests in the United States and Alaska. Included in these totals are about 120,000 cattle and horses and 10,000 sheep and goats which grazed on the national forest ranges under the regulation authorizing free grazing for livestock in actual use by prospectors, campers, and travelers, and for domestic milk or work animals owned by local settlers.

Recreation.—The national forests contain some 4,253 public recreation areas which have been improved with simple facilities for camping and picnicking, 254 winter sports areas, 201 swimming areas, 11 government-owned hotels and resorts, and 54 organization camps built by the Forest Service for use by under-privileged and low income groups. In addition, welfare, religious, and civic organizations have established 311 such camps; private capital, 488 hotels and resorts; and individuals have constructed 11,529 private residences under special use permit on national forest land.

Approximately 6,275,000 people visited the national forests for recreation purposes during 1943, making use of the facilities for camping, picnicking, swimming, fishing, hunting, hiking, or riding. Nearly 270,000 were winter sports enthusiasts enjoying the skiing, skating, and snowshoeing facilities. The figure reported does not include transient motorists and sightseers who passed through national forest areas. Wartime travel restrictions and other factors greatly reduced the total number of visitors to national forests, although in some areas close to military or war industry centers, use of national forests recreation facilities increased. A number of Forest Service organization camps and other recreation facilities were made available to the military services for convalescent camps or recreation centers for members of the armed forces. With the easing of travel restrictions after the war ended in 1945, a sharp increase in recreational use of the national forests was expected. Before the war, more than 30,000,000 visited the national forests each year.

Roads and Trails.—During the war years, 2,500 miles of new roads were constructed or improved in the national forests, exclusive of maintenance work. The new roads were constructed under a wartime program to provide access to mineral deposits or timber stands the products of which were needed for war purposes. This brought the total mileage of roads constructed in the national forests to 67,491 and of trails to 113,282. The total of all funds spent on construction and maintenance of forest roads and trails from the beginning of the national forest system to June 30, 1944, was $472,468,038, of which $441,200,294 represents federal funds and the balance, $31,267,744, co-operative funds furnished by states, counties, and local agencies. At the end of the war, much of the national forest road system was below standard, maintenance work having been largely suspended during the war years.

Hydroelectric Power Permits.—Co-operating with the Federal Power Commission under the Federal Power Act, the Forest Service is supervising the operation of more than 500 federal power permits and licenses.

Fish and Game Protection.—Wildlife populations in the national forests in 1945 were estimated to include about 2,300,000 big game animals and some 3,000,000 fur bearers. National forest wildlife also includes game birds such as grouse, quail, and turkey; and game fish in almost 90,000 miles of fishing streams and in about 1,400,000 million acres of lakes and ponds. Forest officers and co-operating agencies planted 124,000,000 fish in 1943. The total number of deer in national forests at the beginning of 1945 was estimated at 1,940,000, elk 163,000, mountain goats 19,000, bighorn sheep 9,800, moose 8,425, antelope 30,000, black bear 75,000, Alaska brown and grizzly bear 6,000. Within the national forests are 27,733,004 acres in wildlife refuges and sanctuaries; including 405 state game refuges, 30 federal refuges, and 205 areas under special control in the interest of wildlife. The national forests harbor more than a third of the country's total estimated big game population, and provide the nation's largest public hunting areas.

Protection from Insects and Disease.—Control work against white pine blister rust and tree-destroying insects continued on a reduced scale. High school students of predraft age furnished much of the labor for blister rust eradication work in white pine areas of the Northeastern and Lake states and in the western white pine, and in sugar pine regions of the northern Rocky Mountain and Pacific Coast states.

Control work was conducted against pine bark beetles in some parts of the West. There was a severe outbreak of bark beetles in Engleman spruce stands in Colorado, and the salvage of some of the insect-killed spruce was under way. Spruce bud-worm damage was reported to be increasing in the Northeast. The Bureau of Entomology and Plant Quarantine and the Forest Service co-operated in experimental tests with the new insecticide, DDT, for the control of spruce bud-worm and other forest insect pests.

Fire and Fire Control.—Federal and state forestry organizations were handicapped by a depletion in their experienced fire control personnel due to the war. Large numbers of high school students 17 years of age were trained to assist experienced fire guards in the national forests. Volunteer fire fighters provided a reserve of manpower in many areas.

Special wartime hazards and the threat to wartime production, communication and transportation by serious outbreaks of fire made intensified protection effort necessary. Incendiary bombs carried by Japanese balloons were an added hazard in the western states in the early months of 1945. The Forest Service trained some 400 "smoke jumpers" (parachute jumping fire fighters) for prompt attack on fires in inaccessible areas in the West. The Congress appropriated funds for emergency forest fire protection. Danger areas in western national forests were closed to the public in dry weather. With the co-operation of patriotic groups and individuals, federal and state protection agencies continued an intensified forest fire prevention campaign.

According to Forest Service and state reports, a total of 131,229 forest fires burned over 16,549,312 acres of land in the United States in 1944. The damage caused by these fires was placed at $25,775,312 exclusive of the large intangible and indirect damages to watershed values, recreation and wildlife, and loss of employment which cannot be reckoned in dollars and cents. The number of forest fires in 1944 was 79,000 less than in 1943, and the area burned was only about half that of 1943. This big reduction in acreage loss was attributed by foresters to several factors, including intensified wartime fire prevention effort, improved fire fighting techniques and equipment, and fewer campers and hunters in the woods due to wartime restrictions.

Forest protection forces continued to hold fire losses below average in the first half of 1945. In August and September, however, one of the most disastrous fires of recent years occurred in Tillamook County, Oregon. Thousands of fire fighters were unable to check the spread of the flames.

Co-operation of the Federal Government with the States.—Under the Clarke-McNary Law of 1924, the federal government, through the Forest Service, co-operates with the states and with private landowners in the protection from fire of state and private forest land. Co-operative forest fire protection now extends over 301,228,000 acres in the United States and Hawaii; 129,919,000 acres of private and state-owned forest land, however, are not yet receiving organized fire protection. Eighty-four per cent of the 1944 fire losses occurred on lands not under protection.

The Clarke-McNary Act also provides for co-operation between the states and the federal government in the production and distribution of forest planting stock for establishing windbreaks and farm woodlands on denuded or barren lands within co-operating states. During 1943, 46,350,500 trees were produced and distributed at low cost to farmers in 42 states and two territories.

With funds allotted under the Co-operative Farm Forestry Act, the Forest Service is now carrying on a forest products marketing service for farm woodland owners, to provide assistance to farmers in estimating their timber volume and value and in harvesting and marketing forest products. By 1945, some 100 projects had been set up, with a farm forester assigned to each. Most of these were conducted in co-operation with the states, on a 50-50 basis.

From 1943 to 1945 the U. S. Forest Service and co-operating state forestry agencies conducted a special program to increase sharply the production of forest products to meet wartime military and essential civilian lumber needs. This Timber Production War Project was of material aid in increasing output of lumber and pulpwood, especially from farm woodlands and small mills in southern, northeastern, and midwestern areas where the bulk of farm woodlands exist.

Community Forests.—Encouraged by the Forest Service, the number of community-owned forests has increased steadily. In 1945 a total of 2,278 community forests was reported, as compared with 1,687 in 1941. The aggregate area was 2,975,550 acres. Local public forests, maintained by counties, municipalities or school districts were encouraged to help solve local problems of unemployment relief, community environment, educational facilities, and health conditions. Memorial forests to commemorate military heroes were being planned in many communities.

Forest Research.—The Forest Service carries on research work at 12 forest experiment stations and at the Forest Products Laboratory, Madison, Wis. Subjects under investigation include measures to increase and perpetuate timber growth, improved methods of forest resource protection and management, and the development of more efficient utilization of wood and other forest products.

Work at the Forest Products Laboratory was concentrated during most of the year on providing research and technical services required for the selection, production, substitution, and efficient use of forest products for war. Research and pilot plant tests on a process for the production of industrial alcohol by the hydrolysis of wood formed the basis for the first commercial plant for the manufacture of industrial alcohol from wood wastes, which was expected to be in operation at Springfield, Oreg., by the end of 1945.

From 1942 to 1945, 15,197 persons representing the armed services and manufacturers received training in technical courses conducted by the Forest Products Laboratory—13,839 in the field of packaging, and 1,358 in aircraft wood inspection and allied courses. The laboratory sent a staff of experts to Europe to conduct training courses for members of the Army Services of Supply charged with packaging vast quantities of war supplies for transhipment from the European to the Pacific War threater.

The Forest Service participated in an organization to gather information on technical and in-

dustrial developments which occurred in Germany during the war years. This information was desired both to aid the United States in the prosecution of the war against Japan and to assist American industry after the war.

Results of research on reseeding depleted western ranges is pointing the way to improvement of large areas of run-down range land. On a 500-acre area reseeded in 1942 in Fishlake National Forest, Utah, grazing capacity was increased from 8 cattle for 4 months to 100 cattle for 4 months. Increase in value of beef produced in the first year of full utilization (1945) was greater than the total cost of reseeding.

Emergency Rubber Project.—Harvesting was started in 1945 on some 32,000 acres planted to guayule under the project for emergency production of natural rubber assigned to the Forest Service in 1942. Nearly all the planting was in California, but additional small plantings were made for experimental purposes in other southwestern states. A new rubber mill was constructed at Bakersfield, Calif., to process the harvested shrub. As the guayule plantings are converted to rubber, the emergency project will be liquidated. The earlier rubber mill at Salinas, Calif., however, will be maintained by the Department of Agriculture for experimental work.

The Forest Situation in the United States.—The United States has 630 million acres of forest land—nearly one-third of its continental area. Of this, 462 million acres is capable of growing timber of commercial quality or quantity. If this forest land were kept reasonably productive, it could easily produce all the timber the nation is likely to need and a surplus for export. But its productivity must be built up and maintained. In order that the supply of wood may be continued from year to year without interruption, a growing stock of timber must be established and maintained so that the volume cut is constantly being replaced by an equivalent volume reaching merchantable size, in places where it can be utilized economically.

The Chief of the Forest Service, in his annual report said that a big job of forest restoration and improvement faces the nation now that the war has ended. Millions of idle acres need planting; many areas of struggling young growth need thinning or other improvement work to increase the quantity and quality of timber yield; watershed areas that contribute to flood danger need special treatment. Such work, he said, will aid in meeting postwar problems of employment, but it is work that should be done in any event as an investment in the country's future. It will build up a resource basis for new industries and permanent jobs.

Forest resources are dwindling not only in the United States but in many other parts of the world. A report of the Interim Commission on Food and Agriculture to the governments of the United Nations in 1945 said that despite the fact that forests can be managed so as to provide ample wood supplies and vastly increased social benefits, only 15 per cent of the world's timberlands are being handled as a renewable and productive resource. It estimated that two-thirds of the world's forests receive neither care nor protection.

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United States Forest Service.

FORMOSA. An island off the coast of Fukien, China, which was ceded to Japan in 1895 and by the Japanese called TAIWAN. It has an area of 13,890 square miles with a population of about 5,800,000, of whom 300,000 are Japanese. The highest known sea cliffs in the world, 8,000 feet sheer above the water, are on the east coast of the island. Taihoku (pop. 340,114) is the capital. For Japanese children there were (1937) 143 primary schools with 43,671 pupils, and for the instruction of the natives there were 788 schools with 445,396 pupils. There are also normal schools, a medical school, an industrial school, and a language school. The University of Formosa was established in 1928. The budget for 1938–39 was estimated to balance at 183,014,971 yen. Agricultural products are rice, tea, sugar, sweet potatoes, ramie, jute, and turmeric. Since 1906 the colony has been self-supporting. Camphor and camphor oil exports in 1937 were valued at 1,859,936 yen. Placer gold is worked, and silver, coal, and copper are also found. The industries include flour milling, sugar, tobacco, oil, spirits, ironwork, glass, bricks, and soap. Principal imports are fertilizers, cotton and silk textiles, iron and steel, timber, and automobiles, while exports include sugar, rice, bananas, and tea. Imports for the first 9 months of 1940 totaled 1,176,120,813 yen; and exports 700,848,030 yen. Roads have been built throughout the colony. There were (1937) 646.3 miles of government railways, 316.8 miles of private lines, and 1,246.2 miles which were for the exclusive use of private companies. Post offices numbered 193. There were 217 telegraph offices with 734 line miles. The length of the telephone lines is 2,946 miles. Following victory of the Allies over Japan, Formosa, among other former Chinese possessions conquered by Japan, was returned to China, in accordance with a decision reached by Allied leaders at the Cairo conference held Nov. 22-26, 1943. Formosa was heavily bombed by American and British forces during 1945 preceding the surrender of Japan on August 14. At a formal conference for surrender of the Japanese in China held at Chihkiang airfield in the western Hunan Province on August 21, the Chinese announced that they would take over Formosa.

FOSTER, William Z., American Communist: b. Taunton, Mass., 1881. Foster had had a long and rather stormy career as Socialist, Communist and labor leader, when, on July 28, 1945, he was chosen to replace Earl Browder as head of the reconstituted Communist Party, which since 1944 had been called the Communist Political Association. Foster joined the Socialist Party in 1900; the I. W. W. in 1909; and the Communist Party about 1921. In 1919 he was active in organizing steelworkers for the great strike of that year. He was the candidate of the Communist Party for the presidency in 1924, 1928, and in 1932. In 1930 he was a candidate for the governorship of New York. He has attended a number of international Communist congresses, and executive meetings of the Comintern and of the Red International of Labor Unions. A prolific pamphleteer, he is also author of six books, *The Great Strike and Its Lessons* (1920); *The Russian Revolution* (1921); *Misleaders of Labor* (1927); *Towards Soviet America* (1932); *From Bryan to Stalin* (1937); and *Pages From a Worker's Life* (1939). The last two are autobiographical.

FOUILHOUX, Jacques Andre, American architect: b. Paris, France, Sept. 27, 1879; d. Brooklyn, N.Y., June 20, 1945. One of America's leading architects, Mr. Fouilhoux, in collaboration with Wallace K. Harrison, designed the

Trylon and Perisphere, which served as the distinctive symbols of the New York World's Fair in 1939–1940. Together with his associates, he helped design such famous New York skyscrapers as the Daily News Building, the McGraw-Hill Building, and Rockefeller Center.

Mr. Fouilhoux was graduated from the Sorbonne in 1898, and from the École Centrale des Arts et Manufactures (Paris) in 1901. He went to the United States in 1904 and was naturalized in 1913. During the First World War, he served as captain and later as major in the 129th Field Artillery of the United States Army. He was a member of the firm, Whitehouse and Fouilhoux, Portland, Oreg. (1908–1917); associated with Raymond M. Hood in New York (1920–1934); a member of W. K. Harrison and J. A. Fouilhoux (1935–1941); and since 1941, of Harrison, Fouilhoux, and Abramovitz. Recently he had been engaged in defense work at the Naval Base, Canal Zone.

Mr. Fouilhoux was killed in what appeared to be a fall from the roof of a building under construction in the Clinton Hill housing project, which he helped design.

FOUREST, Georges, French poet and author: b. 1868?; d. Paris, France, Jan. 27, 1945. Although his output included only two small books of verse, *The Blonde Negress* and *The Oviparous Geranium,* and a collection of short stories, *Tales for Satyrs,* Georges Fourest's work was reprinted many times, and literary critics agree that his poems will long figure in anthologies. These poems rigidly adhere to classical forms, while the substance is humorous and often ribald. Private means made it possible for Fourest to ignore royalties and write solely for his own pleasure.

FRANCE. Second only to Germany in size among the countries of Europe, apart from the Soviet Union. At the last census (1936) France had an area of 212,659 square miles and a population of 41,907,056, excluding military and naval forces and merchant marine crews abroad, which numbered 107,538. The chief cities of continental France, with their populations in 1936 are: Paris (2,829,746); Marseilles (914,232); Lyons (570,622); Bordeaux (258,348); Nice (241,916); Toulouse (213,220); and Lille (200,575).

French Overseas Empire.—The French overseas empire, with an area of approximately 4,617,579 square miles, is second in size only to that of Great Britain. Its estimated population of nearly 65,000,000 is slightly greater than that of the Netherlands colonial empire. The area and population of the individual territories is shown in the following table:

Colony	Area	Population
Algeria	847,500	7,234,680
Tunisia	48,313	2,608,313
Morocco	162,120	6,242,706
French West Africa	1,815,768	14,944,830
Togo[1]	21,893	737,056
French Equatorial Africa	979,878	3,418,066
Cameroons[1]	166,489	2,513,517
Madagascar and dependencies	241,094	3,797,936
Indo-China[2]	281,174	23,853,429
Somaliland	8,492	44,240
Réunion	970	208,858
French India	196	295,508
St. Pierre and Miquelon	93	4,175
Martinique	385	246,712
Guadeloupe	583	304,239
French Guiana and Inini	65,041	37,005
New Caledonia and dependencies	8,548	53,245
New Hebrides	5,790	45,000
French Establishments in Oceania	1,520	43,608

Defense.—No authoritative data is available as to the exact strength and composition of French land, sea, and air forces either prior to or after the defeat of Germany in 1945. However, on Jan. 1, 1945 it was disclosed that the navy comprised 305 ships with a total tonnage of 300,000, of which 180,000 tons were of major units (battleships, cruisers, and aircraft carriers), and 120,000 tons of light craft. They were manned by 6,000 officers and 77,000 men. In December 1944 it was stated that 25,000 men were engaged in the air force. The French First Army (one of the five allied armies along the western front), composed of units of the North African Army, the Fighting French Forces, and the French Forces of the Interior (FFI), played an important part in the defeat of the invaders, making deep penetrations into southern Germany before the surrender. An unofficial estimate of the army strength in November 1945 placed it at just under 1,000,000, including 400,000 active combat troops, most of whom were on occupation duty in Germany. During the summer and fall troops were sent to Indo-China to suppress a revolutionary movement.

Economic Situation.—The economic situation in France is the direct result of the destruction caused by the invasion and the liberation. In 1940, each of the nine departments of the north (Somme, Nord, Pas-de-Calais, Aisne, Oise, Ardennes, Marne, Seine-Inférieure, and Meurthe-et-Moselle) had more than 10,000 houses destroyed. During the occupation, aerial attacks by the Allies were directed chiefly to port, railway, and industrial installations in the west, north and center. The summer campaign of 1944 caused further ravages on parts of French territory that had hitherto escaped. The channel and Atlantic ports—Le Havre, Brest, Lorient, St. Nazaire, Bordeaux—industrial centers such as those in the Paris suburbs and at Lille, the Creusot works, St. Étienne, railway stations and communication centers such as St. Pierre des Corps, Abbeville, Amiens and Vierzon, especially suffered. The total destruction caused by the last campaign in France has not yet been definitely appraised. We may cite, however, the almost complete destruction of Caen and of many coastal regions of Calvados, Lisieux, Mortain, Tioarn, of Tilly-Sur-Seulx, of Avranches, of St. Malo, Fougères, etc. In their retreat, the Germans destroyed numerous villages, the inhabitants of which were not spared.

The railway network suffered severely from this fighting. At the moment of liberation not a single train moved in France. Of 11,800 steam locomotives which the country possessed before the war, and of which over 4,300 were taken into Germany, there remained only 2,800 that were serviceable; over 1,900 works of art were destroyed or damaged; 7,500 passenger cars and 55,000 freight cars were out of use; over 500 signal towers were destroyed, 1,300,000 square meters of marshaling and classification

[1] Under mandate from the League of Nations.

From 1920 until the Second World War, Syria and Lebanon (total area 57,900 square miles, pop. 3,630,000) together formed a French mandate under the League of Nations. In 1941 the Free French proclaimed the independence, first of Syria and later of Lebanon. On Dec. 27, 1943, representatives of the French Committee of National Liberation and of the states of Syria and Lebanon signed an agreement, effective Jan. 1, 1944, under which all powers exercised by France under the mandate were formally transferred to the Syrian and Lebanese governments.

[2] Prior to the Indo-China-Thailand conflict of 1940–41.

yards had been turned into great masses of twisted rails.

The state of road communications was hardly any better; 2,500 bridges in 50 departments were wholly or partly destroyed. At the moment of liberation, however, resistance groups had partially succeeded in limiting this destruction by imposing a check on the attempts at destruction by the Germans. One may visualize the situation by pointing out that on the Seine not a single bridge was left below Paris, while above it those of Juvisy, Corbeil, Melun, Montereau, Nogent, Romilly, Troyes and others, and some of lesser importance were destroyed. Altogether, the network of waterways suffered less than railways and roads. As regards postal, telegraph, and telephone installations, over 20 buildings had to be rebuilt; 90,000 kilometers of aerial telephone circuits replaced, 60 amplification stations reestablished, 30 city networks put back into service, in addition to over 50,000 subscribers' stations.

These ruins, together with the harbor destruction, have seriously impaired the resumption of French economic life and the normal supply services of the people. A single example will demonstrate: In the port of Brest, import traffic, which reached 750,000 tons in 1938, has been reduced to nothing. For some months, the provisional government has neglected nothing to remedy this situation, but both economic and psychologic factors have prevented it from reestablishing, even in part, the prewar balance.

Some facts may be cited in explanation of the food scarcity in France: exactions and forced seizures by the occupying power, exhaustion of land deprived of fertilizer, lack of upkeep of planting and cultivation, the wearing out of agricultural machinery, decrease in number of livestock by unrestrained slaughter and by systematic pillage (for example, 25,000 head of cattle taken from Alsace into Germany during the final retreat), the loss of 25 per cent of work horses, the wearing out of tractors, lack of and enfeeblement of agricultural labor, and destruction of means of transport.

The meager food stocks in certain producing areas cannot be transported regularly to consumption centers. Between French provinces, there exists an interdependence in food supply to such an extent that France is threatened with a shortage once she is unable to function normally.

Under these conditions the black market has risen to alarming proportions, especially in foods. Despite attempts to check it, it appears that illegal practices cannot be entirely eliminated by repressive methods alone because basically they result from the great disparity between production and income. Prices have continued their upward trend while values have gone down. No means of stopping the price rise is yet visible after 11 years of increases.

In April, the Consultative Assembly passed the first budget of liberated France. It calls for 400 billion francs for expenditure, a figure to be increased in the course of the year by supplementary credits. Receipts, on the other hand, will be about 175 billion francs, showing a deficit of at least 250 billion francs.

The above details suffice to show that there exists great distress in France and that the rehabilitation, so eagerly awaited, will not be immediate. It will take a generation.

Economic Policy.—The new rulers of France have faced with courage the task of economic rehabilitation. Some of their administrative measures, even if circumstances have hindered their full effectiveness, deserve to be noted. Gen. Charles de Gaulle, in a great speech early in 1945, specifically stated the intention of his government to orient itself in the direction of an economic democracy. In the organization of production a large share was to be left to private initiative, to free enterprise sharpened by competition and the profit motive. "We cannot imagine the French economy of tomorrow without a free sector and that as extended as possible." But, in the economic order, there are set limits to a pure and integral liberty.

In the free field, first of all, the ideal of liberty must not exclude the ideal of a social union, of a national purpose. The working class has shown that it is fully cognizant of its duty. It must be a part, in mind and heart, as well as by hand, of management, organization and promotion of business. This association is threefold: in the business itself, where business committees have been formed; in the trades, where trade offices are henceforth to consist of all branches of the trade under the chairmanship of a state representative; finally, on a national plan, "the government is preparing to set up a new National Economic Council on which will sit representatives of all the trades and professions." Thus, emphasis is laid on the notion of association.

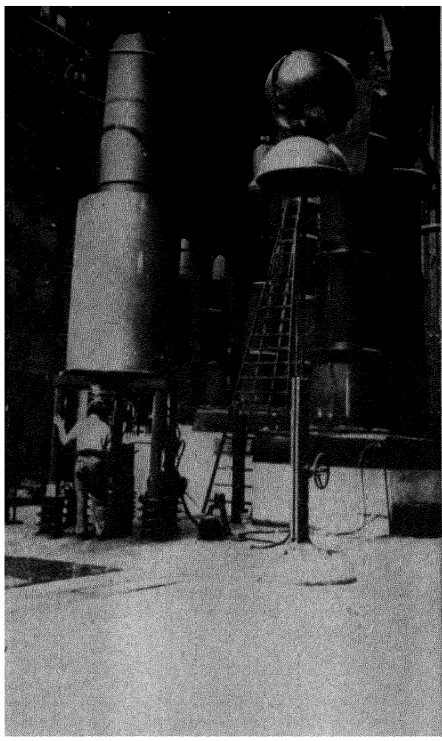
However wide the field left to free enterprise, it will not be allowed to constitute the entire national economy. The government foresees the rise of a public sector alongside the free sector; and in this connection, the government has indicated its purpose to exploit directly, or at least under its immediate control, all basic industry, such as coal mining, power and oil industries, transport and communications and the metal production industries. While a change of setup is necessary, the government does not intend to act in haste. "The timing and selection and nationalization are matters to be carried out in due course after preparation and a study of means," and, moreover, the final decision rests with the nation, not with the government. "It is for the representatives of the nation to make final, or to change, as they see fit, the temporary measures we have taken and shall have to take." In any case, it is selecting administrators and controllers "who by their initiative, their technical knowledge and their desire to succeed, are capable of giving to these (state) undertakings the imprint and character of commercial enterprises." In the future, therefore, a distinction must be made between various kinds of office holders.

Finally, the government reserves the right to give direction and measure to all economic activity. It states clearly the principle of these new duties: "The state alone is qualified so to arrange matters that the multifarious activities within it constitute a whole, in which the entire nation has its part and which is integrated with world economic development."

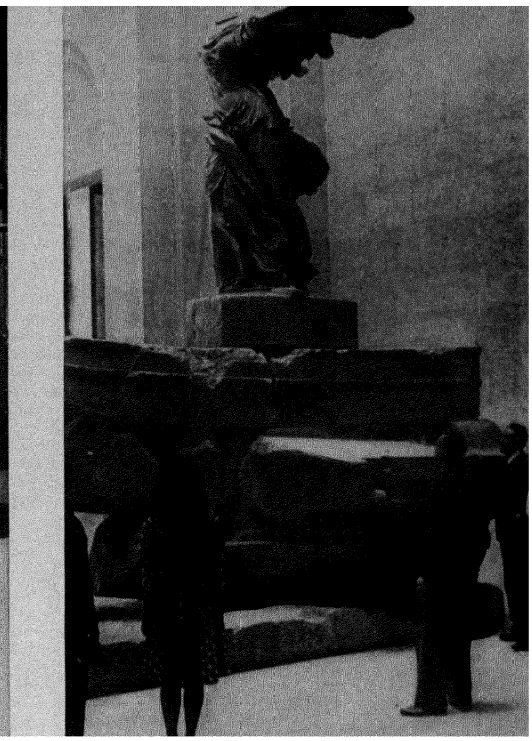
This economic direction the government reserves to itself through control of new enterprises. National savings are to be directed toward the financing of basic industries and special interest groups are not to be permitted to hinder this effort. Finally, as may be necessary, each enterprise is to be responsible to the nation. Here in brief is the economic chart of the new France.

Thus emerge the broad lines of the pro-

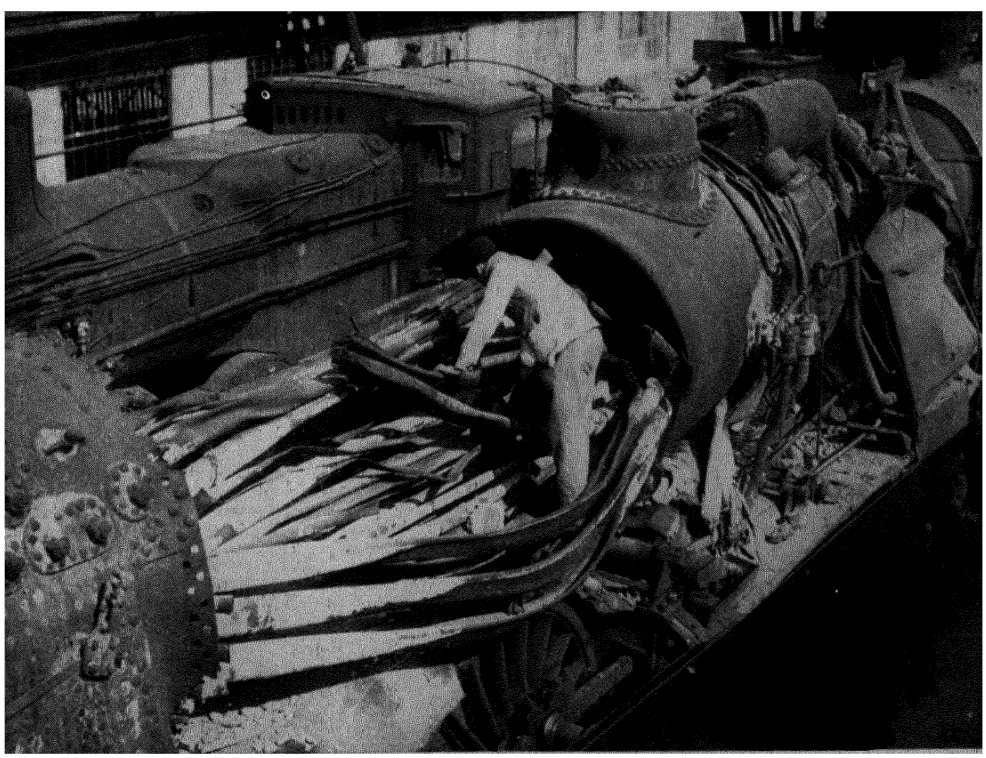
FRANCE



Laboratory in which Frederic Joliot and his wife, Irene Curie, made experiments with uranium.



The "Victory of Samothrace" after its return to the Louvre Museum, Paris.



Courtesy French Press and Information Service

A technician studies the importance of the damages, as the Société Nationale des Chemins de fer fires the activity of its repair factories for disabled locomotives.

jected social organization, in which are brought together as in all political systems, both the demands for liberty and of public order. The part reserved to private initiative remains very large but its managers are given new assurances, new duties. Once again, the idea of the state is changed: alongside the three traditional powers—legislative, executive, and judicial—emerges a fourth, the economic.

How far have these ideas been put into practice? Public bodies have concentrated attention on four main heads: reorganization of the productive machinery; restoration of property destroyed; the condition of the people; and distribution. By an ordinance of Feb. 22, 1945, a larger share was given managers and assistant managers in the relation with different professional categories through the setting up of business committees. The government is endeavoring to recast and reform certain production organizations. In the free enterprise field, the spirit of freedom must not exclude that of co-operation. In the public domain, nationalization must not imperil industrial and commercial initiative. In short, directives, however liberal, demand a minimum of general organization.

In the course of 1945, two economic theories came into sharp conflict. Here it is necessary to give briefly the views of the two groups supporting these opposing concepts. One group has a tendency to overestimate the importance of the role of money in economics and to underestimate the role of production. At the same time it refuses to see in public finance an autonomous technique apart from economics. Instinctively its partisans see in public finance the financial expression of one part or sector of the national economy—the public sector. They grant too much to state intervention, not enough to the reaction and initiative of the individual. The other group, on the contrary, partisans of a more flexible intervention, of an economy directed along less rigid lines, refuses to admit that the rehabilitation of France's economy depends first on a clearing-up of the monetary situation. For these, her rehabilitation will come through careful financing coupled with a resumption of production. They see in public finance an activity relatively autonomous which must subordinate economics rather than be subordinated to it, or integrated with it.

Necessarily, under such conditions the relative importance attached to these matters by the two groups differs. For the first, it is currency, production, public finance, in the order stated; while for the second group it is the same but in inverse order. Pierre Mendès-France, minister of national economy, supported the first contention while René Pléven supported the second. Prolonged Cabinet discussions lasted to April 5 when Mr. Mendès-France resigned and soon afterward the functions of his ministry were placed under the Ministry of Finance.

This appears to be the logical solution, the one most conformable alike to the nature of things and the interests of France. In effect, any economic policy, which does not place first the immediate restoration of production, a rapid rise in savings, with confidence in the future of the country, is full of danger and that within a brief time. Everything in its turn—sound finances and mounting production—will give France a sound currency. The immense effort made throughout 1945, even if it has had no outstanding success, marks a step in the right direction. The period of hesitation and of proceeding by trial and error should soon be at an end.

Social Policy.—In an impoverished France it was necessary above all else to raise salaries. Hence the increase decided by the ordinance of Jan. 6, 1945, effective from February 1. It is a question, not of a simple adjustment, but of many conditions of remuneration tending to assure a revaluation of public service. The increase affected all positions but does not call for a ceiling in its application. The ordinance put an end temporarily to a part of the purchasing power delegated to officeholders receiving over 100,000 francs through the setting up of an obligatory withholding (tax) proportioned to the salary and to the family charges and carried in a special account bearing a small interest.

An ordinance of February 2, granted the labor services the power to transfer male workers, deprived of their customary work, to carry out work necessary to the national economy. This transfer, the refusal of which would be punished by exclusion from all allowances then in force, included the following material compensation, in addition to the regular wage at the new job in the locality in which it is carried on. When the worker is unable to reach his home every evening, he is granted either a premium equal to 10 to 20 hours pay (for lodging) per week; or a daily sum varying according to the zone of origin and the condition of his family, or the maintaining of family allowances at the rate applying in the place where his family resides.

•On March 27, 28, and 29, the National Confederal Committee (CCN) which acts as the administrative council of the Confédération Générale du Travail (CGT or French Federation of Labor) met in Paris. The National Committee of the Confédération Française de Travailleurs Chrétiens (CFTC, or French Confederation of Christian Workers) in turn met on April 16–17 to determine the objectives of Christian syndicalism, to fix the conditions of a French reconstruction program and social peace and to define its public relations generally. What are the tendencies of trade-unionism? The most disputed of these, not new but possessed of new vigor today, is the pretention to universality (the one big union). This great objective of the trade union movement is very clearly placed in relief by the work of the two above-mentioned committees in a report presented by the office of the Federation of Labor and by a resolution adopted concerning the organization of the peace. Representation of trades unions at the preparative peace conferences was demanded, also in the international organizations to be instituted thereat and stemming from the same.

The desire for unity is the second pronounced tendency to emerge. Working-class unity first, and this is the problem of the confederation, and then unity of organization as regards the various classes of workers. If trade-unionism is thus seeking unity or at least an organic understanding, it is because it sees the possibility of increasing its constructive activity. In turning in a direction clearly constructive, the trade-union movement has no intention of renouncing labor's claims, which rest on proved means of collective bargaining, of standing together, better understood by its members than any projects of reform. Finally, in the plan of large reforms of organization, trade-unionism has declared for nationalization, but not for any and every kind of nationalization. The National Confederal Com-

mittee reminds us that "every reform which does not entirely exclude from the management of industry the representatives of the holders of capital, cannot be considered a true nationalization." Similarly, a motion of the national committee of the Confédération Française de Travailleurs Chrétiens sets down the ideas of Christian trade-unionism in regard to this reform conceptions which condition its total adherence to the measures already taken or to be taken. Trade-unionism desires to collaborate with the government, but without loss of its autonomy and its liberty of thought and action.

In view of the deficient documentary material at hand, it is impossible to give an adequate picture of nutrition as to the entirety of French territory, because the living conditions of the French people, during the German occupation, were marked by great inequalities. The chances of provisioning were, and so remain, very different according to locality, the social classes, the professions and the family circle. While some cities endured slow starvation, others, situated in richer or better served regions, were provisioned almost in normal fashion. In general, the rural population lacked only goods from abroad; some provinces, like Normandy, took no account of restrictions, while the wine-growing regions of the Midi suffered almost as much as the cities.

It is easy to estimate the consequences of this undernourishment on the state of health of the French. In the great urban centers the food supply was clearly insufficient—about 1,200 calories for adults. These food conditions in the great cities brought out a certain number of organic deficiencies which will not soon be amended: (1) if the norms of weight and height of the newborn remain at the old standard, about 30 per cent of the children are greatly under weight; (2) emaciation was general among the urban population, less among the young than among adults and the aged, more frequent and more accentuated among men than among women; (3) anemia was disclosed among the greater part of those examined and the count of red corpuscles was generally low; (4) biologic tests disclosed a lack of vitamins among 20 per cent of those examined, and more frequent among the very young; (5) the pathology of diseases due to lack of vitamins made its appearance; (6) tuberculosis and infectious diseases increased considerably.

The decisions taken by the Council of Ministers on the subject of increased taxes on some rents were the result of a compromise between several conflicting theories. They bear the mark of this origin and have the earmarks of a temporary character. The problem of housing has reached such a degree of complexity that it can be solved only in successive stages. The government has simultaneously re-established a certain balance between upper higher rental brackets and has permitted the gulf to widen between these higher brackets and those which, since 1914, social considerations had caused to remain static.

The setting up of a National Housing Bank (Caisse Nationale de l'Habitat) and a Housing Office is important. It is certain that reconstruction will impose tasks of such amplitude that they cannot be abandoned completely to the initiative of private capital. The outlay already in view by the bank is only a first stage in the inevitable intervention by public authority.

The setup of a Sanitary Building Registry is another part of this housing policy, on which will depend in great measure the recuperation of France.

The Ministry of Reconstruction is going ahead with town planning and programs for the revamping of the building industry.

The government has in hand a number of supplementary measures. The task is huge, for France, aside from the vast amount of destruction to be repaired, must overcome the heavy handicap of a housing policy, which for 30 years had already proved insufficient. This work is therefore indispensable and must be given first priority in the social policy of the new France. It bears within itself the elements for the solution of many other pressing problems—to mention only the population problem about which the authorities are justly worried.

In the course of an address, General de Gaulle declared that the bringing into force of a policy concerning the birthrate and a policy of immigration were high on the program of the great reforms slated for accomplishment in 1945. It is well known that depopulation is one of the essential factors which have contributed to put in doubt France's place in the rank of the great powers. For a century the population of France has increased, growing from 35 to 42 million, but aside from foreign immigration, this increase has been due to a lengthening of the life span. The number of persons under 15 years of age has not varied; on the other hand, the number of old men has increased by 70 per cent. Hence a constantly increasing numerical disproportion between the aged and the young. France is becoming a land of old men.

In addition to legislation designed to favor the normal growth of families, thought must be given to a controlled immigration. The most interesting case is that of foreigners residing in France before the war, who sought refuge beyond her borders during the occupation. Among these were well assimilated elements following a stay of many years in France.

There is a body charged with this matter of immigration. It is the Secretariat General for Family and Population, and is part of the Ministry of Public Health. It began to work against the menacing scourge of the human impoverishment of the country. Without in any way prejudicing the need for national cohesion, it is absolutely necessary that France have more Frenchmen if she wishes to resume her eminent role in the world. Her political as well as her social life thus is a biological problem to the solution of which the present authorities are devoting themselves, understanding as they do the urgency of the situation and the necessity of applying a remedy without delay.

Foreign Policy.—The outstanding events in foreign relations in 1945 were at first military and secondly diplomatic. In both of these the position of France felt the effects of the defeat of 1940 and the terrible years of occupation. Herein are given a few dates which mark stages on the road back.

Jan. 20, 1945: the date of the French offensive in the Colmar region, resulting in the liberation of the city on February 3. March 15: the Third Army crosses the Moselle and takes Coblenz. March 20: French troops enter Germany and cross the Rhine on March 31. April 4: the French take Karlsruhe; the 16th, Kehl; the 22d, Stuttgart and Fribourg; the 24th, Ulm. The following day, Marshal Pétain is placed

under arrest and the conference for world security opens at San Francisco.

The trials of the leading collaborators come under this head because they created quite a stir and reopened a quarrel which had begun and flourished under the government of Vichy. The two chief defendants were Marshal Pétain, to whom Paul Reynaud consigned the powers of president of the Council of Ministers a few days before the Armistice of June 1940 and who thereafter became chief of the French State; and Pierre Laval, thrice president of the Council before the war and the right arm of the marshal during the occupation. The trials of these two opened in an atmosphere of unbridled passion and before a court composed of former members of the Chamber of Deputies and of the Maquis (French Forces of the Interior). The proceedings were violent in the extreme and the elementary rules of the administration of justice were constantly broken. At length, Marshal Pétain, who had refused to defend himself, was condemned to death. The chief of the provisional government (General de Gaulle) because of the marshal's great age and of his eminent services to France in the past, commuted the penalty to life imprisonment and civic degradation. Laval was also found guilty of collusion with the enemy and condemned to death, despite his protestations of innocence. After an unsuccessful attempt at suicide, he died before a firing squad on October 15. So ended one of the most regrettable episodes of contemporary France and one which seriously impaired her prestige throughout the world.

At San Francisco, the French delegation, headed by Georges Bidault, minister of foreign affairs, included the finance minister, René Pléven, the minister of health, François Billoux, former Minister Paul Boncour, General Juin, and Admiral d'Argenlieu. In the nine weeks of deliberation, the attitude of the French delegation was one of waiting and of reserve, a reserve due to the circumstances that the French had been successively excluded from the preliminary talks at Dumbarton Oaks and from the Crimea (Yalta) Conference, as they were later to be excluded from that at Potsdam.

Among the powers dominating affairs at San Francisco, there was a very select hierarchy. At times the Big Five conferred, and then France participated. More often, the inner circle comprised the Big Four. As a general rule, all important decisions were made by the Big Three, and then China and France had to content themselves with learning the result from the newspapers or by conversations in the corridor.

This situation bore heavily on French self-esteem. On several occasions, Mr. Bidault made known his resentment at seeing his country relegated to a minor role. He succeeded, however, in having French recognized as an official language and in setting forth the French stand on the muddled question of trusteeship and in expressing firmly and with dignity the French demands for the Saar and the Ruhr.

The Council of Foreign Ministers of the five great powers, gathered in London following a joint decision of President Harry S. Truman, Prime Minister Clement Attlee and Premier Joseph Stalin, furnished the world an example of deep misunderstanding. In the British capital, as at San Francisco, the French delegation faced several rebuffs with courage and dignity, showing their determination to lead the discussions to positive results. The discussion of French claims did not come up until near the close of the deliberations at a time when everybody could foresee their denial. Again, Mr. Bidault endeavored to have the French viewpoint prevail—that is, that the Rhine barrier is and remains the most potent defense of all Europe, on condition that France be enabled to police it and that she be permitted to make use of the mineral resources and coal mines of Germany.

In the zone of occupation given her, France is trying to fulfill scrupulously her obligations without needlessly bullying the Germans. At the moment, France is credited with having the intention of grouping certain elements to form a kind of moral and economic federation in western Europe, in which a democratic Germany would have a part under the tutelage of France. So far it is only a project which may be brought into clearer perspective in the next few months.

Lastly, General de Gaulle visited President Truman in Washington for a brief conference in the hope of obtaining credits to aid in the economic rehabilitation of France. The results of the visit have yet to make themselves apparent.

All in all, France has shown considerable energy and foresight in resuming her traditional role in world affairs. The meager results thus far obtained are due to a general situation for which she is not responsible and to remedy which is hardly incumbent on her.

Colonial Policy.—The sad happenings in Syria and Lebanon, as also the threats of revolt in Indo-China—common phenomena to all present-day imperial powers—focused the attention of the French on their colonies. Various measures were taken to improve conditions in the heart of the world's second colonial empire. Here are a few designed to strengthen the ties between the homeland and its distant possessions.

Henceforth, an overseas period of residence will be a prerequisite for all candidates for positions as colonial administrators. There is under way also a reform of the inspection service which will oblige inspectors to have not only a general knowledge of the problems of a single colony, but also of the entirety of problems of the same nature common to all colonies.

In order to prepare for native representation, the government named a commission to fix the proper number of delegates to the Constitutional Assembly. It also set up a Council of Representatives in Madagascar, and in Indo-China, and gave attention to the setting-up of local representative bodies all over the empire. A series of ordinances reformed the system of native justice, especially in the Cameroons, Togo, and French West Africa.

The government also took steps to modernize the colonial labor system. Inspection of labor was extended. Freedom to work and freedom of association were proclaimed. This has permitted unions to be formed and a colonial labor code to be drawn up for submission to the Council of State. To provide for a better orientation of overseas products, there was set up an Office of Colonial Agriculture, Stock Raising and Forests.

The overall purpose has been to effect a closer relationship between the French at home and the French overseas. The present colonial unrest stems from the fact that, during the past five years, there has not been active that give-and-take between the French settled on home acres and those settled on the virgin lands overseas without which the idea of empire fares badly.

That the government has understood this is shown by its having placed human needs ahead of the acquisition of wealth. It has set up in the Colonial Office a division of colonial information. It has been recommended to the Consultative Assembly that the Ministry of National Education grant scholarships to students who have given proof of their knowledge and character; also that the study of law, history, and colonial economics be enlarged in the proper teaching faculties.

In this way only will it be possible to battle efficiently against the threats of disintegration which would entail a moral and material impoverishment for France and would quickly relegate her to the rank of a secondary power.

National Policy.—During the occupation, the old parties were more or less subject to disintegration. The groups of the Right have almost disappeared and about in the measure that their elements had given support to the Vichy regime. Even the parties of the Left have not been spared from an inevitable crumbling. Moreover, the resistance groups have fallen into factions and seek recognition for their services to the French cause. Lastly, to complicate still more the analysis of the French political map, the emigrés gathered under the banner of Free France have re-entered the country and seek to play a political role therein.

For many months, the unification of the resistance groups was the great question to the fore. Unity was to bring all movements into one to be called the National Liberation Front in which were to be gathered all adherents, of even widely differing political thought and including even the militant Communists. This diversity would have obliged the unifying movement to have no other common program than some ideas and sentiments which were common to the resistance movement as a whole—antifascism, the will to independence, national greatness, republican and democratic sentiment, a desire for liberty, a deep desire for political reform, anger toward certain citizens deemed responsible for the defeat and toward profiteers from the occupation, finally dynamism and indifference to violence. This attempt at classification could not be fully accomplished; partisan passions and ideological differences were too strong. In the past few months there has been a reorientation of parties and the confusion apparent early in 1945 has given place to a new regrouping of French political forces, with a marked leaning to the Left, which is understandable from both historic and social reasons.

The session of the Provisional Consultative Assembly began on February 6 and was the occasion for a lively exchange of viewpoints. Three ministers were especially the target of attacks. They were: M. de Menthon, keeper of the seals; Diethelm, minister of war; and Teitgen, minister of information.

The first-named was especially charged with having kept in the administration of justice, magistrates who appeared unable to understand the importance which judicial actions should have during the year following liberation. It was said that they delayed the organization of courts which, had they functioned earlier, would in great measure have been able to prevent disorders. Failing to do so they had permitted too many arbitrary arrests. They showed themselves unwilling to try to set up the apparatus and special personnel necessary to put a full and speedy end to disorder. They appeared to have a too narrow view of the situation in which the court administration found itself and sought overzealously to maintain the traditional order both in method and personnel.

As regards M. Diethelm, he was accused of systematic favoritism toward the army officers of the armistice at the expense of those of the resistance and even of those of the Free French Forces.

Herein lay the problem of the formation of a renewed French Army. The minister's replies were hardly satisfactory and it is difficult to consider them as separate from the general policy of the government in this matter.

The chief reproaches against the minister of information had to do with the prohibition against publication of certain worthy newspapers and the authorization given certain others shown to be unworthy. Lack of paper, the censorship, dictatorial methods of this ministry were other plaints voiced in the assembly. M. Teitgen emerged the victor from these accusations by insisting on the difficulties inherent in the situation at the time.

A long and bitter debate followed on school subsidies. The problem is this: a subsidy of 500 million francs to free schools was provided in the budget of national education in conformity with a law promulgated by the government of Vichy. A strict return to republican legality would involve the cancellation of these credits. But was it necessary to bring about this cancellation in the middle of the school year or continue the subsidies?

Campaigns conducted throughout the country awakened lay susceptibilities. They caused many to fear that many Catholics were unwilling to go back to the old doctrine of state supremacy in the matter of education. Some criticized the prewar public school system and asked for the installation in France of separate church schools. The reaction of political parties, movements, and educational associations attached to lay schools was very strong. The government had taken a position capable of rallying all parties. A commission had been in existence for several months, composed of eminent men of diverse points of view and charged with examining the changes necessary in primary education. The government felt that if the cancellation of the subsidies could be decided as to principle at once, the application should be put off some months for material reasons, such as the insufficiency of public school buildings and the impossibility of replacing teachers of the free schools everywhere by public school teachers.

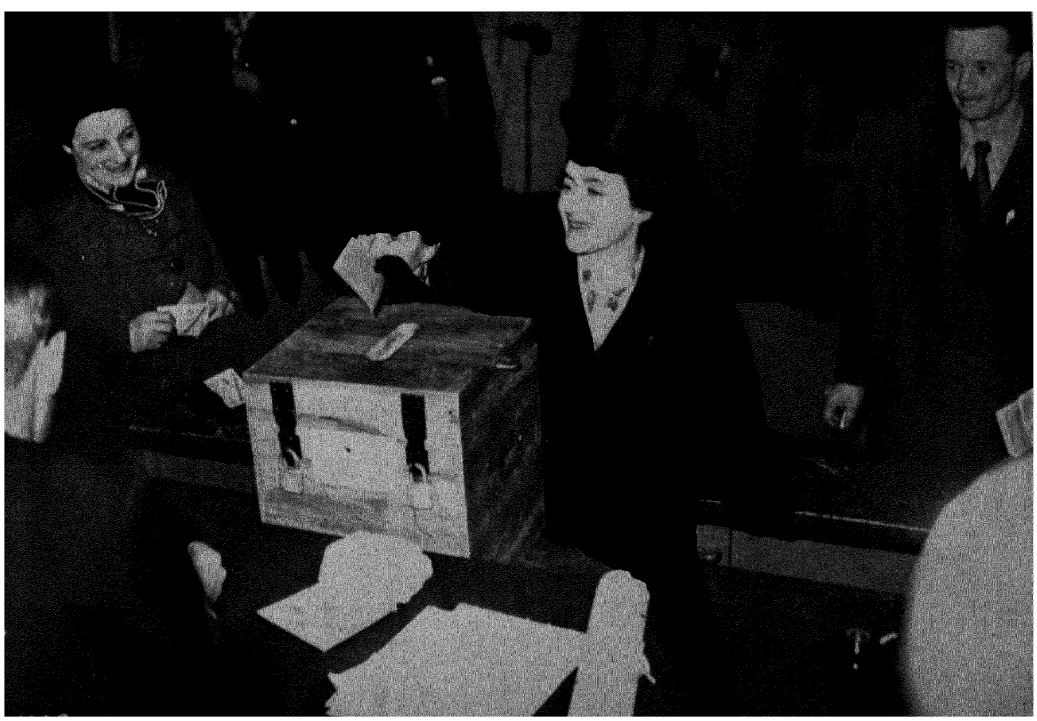
In the assembly, the debate waxed warm and the Tessier amendment favoring continuance of the subsidies was rejected, 128 to 48. Nevertheless the government, ignoring the assembly, decided to continue the subsidies up to July 15. From this debate three things also worthy of note in other matters in dispute emerged: (1) the fact that the assembly was purely consultative detracted greatly from the weight of its vote. (2) The great majority of the assembly remains warmly attached to the lay system and is suspicious of clerical sectarianism in certain quarters. (3) The get-together tendency between the strict Socialists and those of the spiritual (parlor) type seems to have been compromised for good.

The great debate touched on the constitution. There were clearly defined divisions among the parties into single-chamber and bicameral groups; the radical Socialists and moderates (the Popu-

FRANCE



Gen. Charles de Gaulle is acclaimed by the population of the battered city of Brest.



Courtesy French Press and Inf.

Mrs. de Gaulle casting her vote. On April 29, 1945, women voted for the first time in the history of France.

lar Republican Movement, MRP excepted) remained faithful to the Constitution of 1875, while the Socialists and Communists as also the several resistance groups showed their preference for a single chamber, endowed alike with legislative and constitutional powers, and chosen according to the principle of proportional representation.

General de Gaulle took a position closely approaching the radical, asking that members elected be formed into a constitutional assembly to elaborate the institutions of the Fourth Republic, but that during the seven months they worked on this, they were not to meddle in the administrative tasks of the provisional government. It was this view which in great part won out in the popular referendum of October 21, at which the Socialists and the members of the Popular Republican Movement obtained a success which places on them responsibility for the future. It can be said of the election, as of the cantonal elections that preceded it by a few weeks, that the country voted for the resistance, that it voted Left, that it voted for a complete change in the economic setup and in men and party.

The October 21 elections gave the Communists 152 seats, making them the largest single party; but they were nearly tied by Leon Blum's Socialists with 142 seats, while the MRP, which is supposed more nearly to reflect General de Gaulle's view, won 138 seats. In accordance with its mandate the Constituent Assembly began to function on November 6. Its term of life is limited to June 6, 1946, by which time it must have agreed upon a new constitution, or confess failure. In the latter event, another assembly will have to be elected to repeat the attempt. The constitution as finally drawn by the assembly will be submitted to a popular referendum. General de Gaulle's provisional government surrendered its powers to the Constituent Assembly which after a brief delay returned them to him as head of the continuing provisional government.

The task of the new Constituent Assembly is immense. It must remedy the errors of the past and fill the gaps in the Constitution of 1875, especially by strengthening the executive power in order to avoid the chronic instability of the Cabinet, while at the same time safeguarding the demands of a democratic regime. This is the price of safety.

The Literary Balance Sheet.—We are just beginning to learn what happened in the literary field in France during and since the occupation. New books were few and the greater number, of necessity, were written in secret. Many writers, known for their patriotism and their hatred of the invader, were obliged to remain silent. Others fled to the United States, Canada, Switzerland and Latin America. Withal, France continued to think and to produce works of great value.

But first, let us count the losses. Some, like Jean Prévost, died bearing arms; or disappeared like Saint-Exupéry who had previously published *Pilote de Guerre* and *Lettre à un Otage;* were executed like Jacques Decour; were victims of German barbarity, like Benjamin Crémieux, Max Jacob, and Louis Mandin, in concentration camps. Also there were those who collaborated with the Germans and who now find themselves ostracized from the French community, like Abel Hermant, Abel Bonnard, Charles Maurras, Jacques Chardonne, Alphonse de Chauteaubriant, Henry de Montherlant, Drieu la Rochelle, who committed suicide, Robert Brasillach, executed after trial, and Georges Suarez, who had a like fate.

From Tunis, André Gide published his *Interviews Imaginaires.* From America, Jules Romains, André Maurois, Jacques Maritain, and Georges Bernanos have continued their work, as did Francis Carco in Switzerland. Suspected by the invader, Mauriac, Duhamel, and Valéry did not publish. That great writer, Jean Giroudoux, died under mysterious circumstances, while Paul Valéry, one of the three greatest of present-day French writers, died early in 1945.

Since the liberation, Georges Duhamel has published the first two volumes of his memoirs, *Inventaire de l'Abîme* and *Biographie de mes Fantômes.* In the field of the novel the following deserve mention: a story collection, *Bellavista;* the novels *Julie de Carneilham* and *Gigi* by Colette, who was recently admitted to the Academy Goncourt; *La dernière harde,* by Maurice Genevoix; *Le fil d'Ariane,* a tale by Francis de Miomandre; *Pauline,* the story of a young girl of 1880, and *L'Herbe à pauvre homme,* a write-up of a lewd crime, by André Billy. To these should be added *La Terrasse du Luxembourg;* the *Voyageurs de l'impériale* and *Aurélien; Mille regrets;* the *Cheval blanc* and *Le premier accroc coûte 20,000 francs* by Elsa Triolet, wife of Aragon. This last work earned its author the Goncourt Prize, while the jury of the Théophraste-Renaudot Prize favored *Les Amitiés particulières* by Peyrefitte; *L'Etranger* by Albert Camus.

The occupation brought forth a harvest of poetry. Reviews and posters mushroomed under the very eyes of the enemy. New reviews like *Les Cahiers du Sud, Fontaines, Confluences, Fusées,* gave evidence of great activity. Among the noteworthy poets were Pierre Emmanuel, author of *Tombeau d'Orphée, Jours de Colère,* and *Combats avec tes défenseurs;* Louis Aragon, author of *Le Crève-coeur* and *Les Yeux d'Elsa;* and Paul Elmars, author of *Poésie et Vérité 42* and *Dignes de vivre.*

For the war record, we may mention the works published in secret in the Editions de Minuit, especially *Le Cahier noir,* in which Mauriac took the pseudonym of Forez, and *Le silence de la mer* by Vercors. Personal experience works included *En automitrailleuse à travers les batailles de mai* by Guy de Chézal; *Tourelles de mai, patrouilles de juin,* by Pierre Hennequier; *Ceux des chars,* by Pierre Voisin; *Dites-le-leur,* by Jean Agapit. It goes without saying that the bulk of war volumes appeared outside France, notably in America.

In the field of learning, we mention among others a profound study of Rousseau's *Emile* by Father Ravier, S.J.; a study by Jacques Baschet of the critic Etienne Delécluze, pupil of the painter David and friend of Stendhal and Mérimée; a thesis on Stendahl by Jean Prévost and the final edition of *Souvenir d'Egotisme* by Henri Martineau; the complete edition of Mérimée's letters, a critical edition of Maurice Parturier, one of Sainte-Beuve by Jean Bonnerot, one of Lamartine by Henri Guillemin, who under the title *Cette infernale affaire* again describes the Hume-Rousseau dispute.

Among biographies there appeared a *Lamartine* by the Marquis de Luppé, a *Montaigne* by Auguste Bailly, a *Molière* by Pierre Brisson; *Jean Racine* and *Beaudelaire et la Présidente* by François Porché; the *Souvenirs sur Huysmans*

by Lucien Descaves; a life of Balzac by André Billy, *Stéphane Mallarmée* by Henri Mondor, works by Van Tieghem on *La littérature comparée;* by Daniel Mornet on *L'Historie de la littérature classique en France;* by René Bray on *La formation de la doctrine classique en France* and on *Boileau.*

All this time the Académie Française was in a bad way. Death created several vacancies. To these must be added the vacancies caused by expulsion of several members for national unworthiness and the absences from France of others. Sessions at present can count on only 19 Academicians. It is to be hoped that this learned group will soon fill its empty chairs so that the Forty Immortals will again live up to their name.

ROGER DUHAMEL,
Avocat et journaliste; ancien président de la Société Saint-Jean Baptiste.

FRANK, Bruno, German poet, novelist, and playwright: b. Stuttgart, Germany, June 13, 1887; d. Beverly Hills, Calif., June 20, 1945. Both as a novelist and as a playwright, Dr. Frank won a large public in Europe. He is probably best known in the United States for his historical novel, *A Man Called Cervantes,* which was the Book-of-the-Month Club selection for March 1935.

After attending the Stuttgart Gymnasium, Dr. Frank studied at the universities of Tübingen, Munich, Strasburg, and Leipzig. The son of a successful banker and merchant, he gave up commerce at the age of 18, brought out a volume of verse, *Aus der Goldenen Schale* in 1905, and thereafter supported himself by his pen. His first novel, *Die Nachtwache,* was published in 1909. During the First World War, he served in Poland and in France. After Hitler assumed power, he left Germany, and went to the United States in 1937, where he worked on the scripts of several motion pictures, including *The Hunchback of Notre Dame* and *A Royal Scandal.*

Dr. Frank's works include *Flüchtlinge* (1911); *Requiem* (1913); *Die Fürstin* (1915); *Erzählungen* (1920); *Tage des Königs* (1924); *Trenck* (1926); *Politische Novelle* (1928); *Der Magier* (1929); *Cervantes* (1934); *Der Reisepass* (1937); *Die Tochter* (1943); and a book of poems, *Die Schatten der Dinge* (1912). Of his plays, *Zwölftausend* (1928) achieved special success and was seen in more than 150 continental theaters. Other plays include *Die Schwestern und der Fremde* (1918); *Nina* (1931); *Der General und das Gold* (1932); and *Sturm im Wasserglas* (1930), which was presented in an English adaptation by the Theater Guild in New York in 1937, and filmed in England the next year.

FRANKLIN INSTITUTE, The. Founded in 1824, the Franklin Institute, Philadelphia, Pa., is one of the oldest institutions in the United States devoted to the study and promotion of the mechanic arts and applied sciences. Since 1938 it has also been known as the National Memorial to Benjamin Franklin. For an account of its early history and expansion (1930–40), see THE AMERICANA ANNUAL for 1941.

The staff of the institute, its work shops and research laboratories have been devoted almost entirely to the war effort. Research work for the government is still carried on. Despite this, the usual routine of the institute has been followed as closely as possible.

A Franklin Medal was awarded in 1945 to Dr. Harlow Shapley, director of the Harvard College Observatory, Harvard University, for his many valuable contributions to the science of astronomy. Nine other medals were also awarded for scientific achievements, among them two Cresson medals (founded in 1848, the oldest award given by the Franklin Institute) to Rear Admiral Stanford C. Hooper, USN (Retired), for his achievements in the field of radio for the United States Navy; and to Prof. Lewis F. Moody, professor of Hydraulic Engineering, Princeton University, for his contributions to this field of engineering.

An outstanding series of lectures was given throughout the season; the *Journal* was published regularly; the library containing 130,000 books and 44,000 pamphlets, reported a continuance of requests for technical and patent literature by war and research workers; and attendance at the museum and planetarium showed a decided increase. In September 1944 the institute was honored for its war work and received public recognition when the Ordnance Department of the U.S. Army bestowed upon it the Distinguished Service Award. The presentation was made by the Chief of Ordnance, Maj. Gen. L. H. Campbell, U.S.A., at the Franklin Institute. In October 1945 the Bureau of Ordnance, Navy Department, voted the institute the Navy Ordnance Development Award.

The educational department of the Franklin Institute has made closer contact with the school children during the past year with the result that many thousands have visited the museum. Two radio programs were inaugurated to which the children listen during school hours.

The National Franklin Committee, formed in 1941 to promote public interest in the life and writings of Benjamin Franklin, with special emphasis on his homely virtues and timely philosophy, distributed free of charge thousands of pieces of literature regarding this great American. The institute's publications *Meet Dr. Franklin* and *Profile of Genius* continued to appeal to a wide public. These books are sold in addition to the other material regarding Franklin, which is distributed free of charge.

HENRY BUTLER ALLEN,
Secretary and Director, the Franklin Institute.

FRASER, Leon, American banker: b. Boston, Mass., Nov. 27, 1889; d. North Granville, N.Y., April 8, 1945. President of the First National Bank of New York since 1937, and former president of the Bank for International Settlements, Leon Fraser was one of the leading financial figures of the United States and the world. Mr. Fraser received a B.A. degree in 1910, an M.A. degree in 1911, a Litt. B. degree in 1913, and a Ph.D. degree in 1915, all from Columbia University. While still at Columbia, he worked for about a year as a reporter on the New York *World,* and in 1914 was admitted to the New York bar and became a lecturer on political science and an instructor in public law at Columbia. He entered the army as a private in 1917, and emerged from the war as a major and a judge advocate in the Service of Supply, American Expeditionary Forces. In 1920, he became associate counsel and assistant director of the Bureau of War Risk Insurance, and the next year served as executive officer and acting director of the United States Veterans Bureau. He left government service in 1922 to practice international law in Paris with Coudert Brothers, and in 1924 was legal adviser to the American dele-

gation to the London Prime Ministers Conference. From 1924 to 1927, he was general counsel to the Dawes Plan and Paris representative for reparations payments. He attended the Paris Conference of Financial Experts which drafted the Young Plan in 1929, and in 1933 was a member of the commission of experts at the London Monetary and Economic Conference. He became vice president and director of the Bank for International Settlements at Basel, Switzerland, in 1930, and president and chairman of the board in 1933. He came to the First National Bank of New York in 1935 as vice president.

Mr. Fraser received the Distinguished Service Medal, and was made a grand officer of the French Legion of Honor, the Order of Leopold of Belgium, an officer of the French Academy, and a commander of the Order of St. Sava of Yugoslavia. He was a director of the General Electric Company, the International General Electric Company, the United States Steel Corporation, the New York Central Railroad Company, and the Federal Reserve Bank of New York; and a trustee of the Mutual Life Insurance Company, Columbia University, Union College, the American Red Cross Endowment Fund, and other groups. In 1944, he served as chairman of the New York Clearing House Committee and also as national chairman of the American Red Cross War Fund.

Mr. Fraser killed himself by a shot through the head after writing two notes, one of which told of "melancholia that steadily gets worse."

FREEMASONRY. According to the latest available information, there are 15,264 Masonic lodges, having a total of 2,565,391 members, in the 48 states of the United States, the District of Columbia, and Puerto Rico. During the Second World War the Masons concentrated to a very large extent upon welfare work for their men in the service and the families thereof. The Grand Lodge of the State of New York, for example, raised, in the year ended July 30, 1945, a war chest of $2 per capita from its 250,290 members (as of Dec. 31, 1944), for the maintenance of service centers for men of the armed forces, both Masons and non-Masons. This lodge has its headquarters in Masonic Hall, 71 West 23d Street, New York City, 10. Charles W. Froessel is grand master, and Charles H. Johnson is grand secretary.

FRENCH CAMEROUN. See CAMEROUN.

FRENCH EQUATORIAL AFRICA. A federation of four French colonies in central Africa. It extends along the west coast of Africa between (Spanish) Rio Muni, on the north, and (Portuguese) Cabinda, on the south; inland boundaries, on either side, are (French) Cameroun and the Belgian Congo; and it stretches northward to Lake Chad and the frontier of Libya. The total area is 959,256 square miles, and the population as of Aug. 1, 1943, amounts to 3,730,809, of whom 6,099 are Europeans. Brazzaville (pop. 47,000) is the headquarters of the governor general. The federated colonies constituting the administrative unit known as French Equatorial Africa are as follows:

	Area sq. mi.	Population	Colonial capital
Gabon	93,218	409,739	Libreville (4,500)
Moyen Congo	166,069	746,805	Brazzaville (47,000)
Oubangui Chari	238,767	833,916	Bangui (13,500)
Chad	461,202	1,432,555	Fort Lamy (6,000)
Total	959,256	3,423,015	

Education of the population has scarcely commenced. In 1944 there were 260 schools with 28,692 pupils.

The economic resources of the federation remain largely undeveloped. Cotton, coffee and cacao are cultivated to a limited extent, and wild rubber and products of the oil palm are collected, while stock raising is carried on in Chad colony; other industries are lumbering and diamond-mining. Export of ivory and hardwoods decreased following the outbreak of the Second World War, but there was an increase in other exports, particularly cotton, rubber and palm-oil products. Nevertheless, there was a large decrease in the volume of exports as compared with prewar. In 1944 117,700 tons of produce were exported, compared with 333,900 tons in 1938. While the value of these decreased exports was 690,400,000 francs against only 264,100,000 francs for nearly three times the tonnage in 1938, the comparison was inexact, for on March 8, 1944, the franc had been depreciated by 13 per cent in French Equatorial Africa and in certain other French colonies. A like consideration applies to imports, which fell only slightly in tonnage but were valued at more than twice as much. In 1938, 76,300 tons of imports had a value of 295,800,000 francs; in 1944, 68,800 tons were valued at 728,000,000 francs. Customs receipts for 1944 were 186,100,000 francs, compared with 77,300,000 francs in 1938. A comparison of the foreign trade statistics for the first four months of 1945 with the relative period of 1944 shows a slight decrease in tonnage.

FRENCH EQUATORIAL AFRICA, FOREIGN TRADE

1944 First 4 mos.		Value
Imports	25,500 tons	266,400,000 francs
Exports	39,000 tons	146,200,000 francs
Total	64,500 tons	412,600,000 francs
1945 First 4 mos.		**Value**
Imports	26,800 tons	247,600,000 francs
Exports	29,100 tons	132,200,000 francs
Total	55,900 tons	379,800,000 francs

The chief seaports are Libreville and Port Gentil in Gabon colony, and Pointe Noire in Moyen Congo. A 318-mile railroad line, the only one in French Equatorial Africa, connects Pointe Noire with Brazzaville, whence steamer services proceed up the Congo River. One highway links Fort Lamy with Bangui; and a second connects Brazzaville with Libreville. Two main highways from Douala, in Cameroun, traverse the country. The northern road runs northeast to Fort Lamy, just below Lake Chad, and continues eastward through Chad colony, crossing the Darfur Province of the Anglo-Egyptian Sudan to reach Khartoum; roads from Takoradi, in the Gold Coast, and from Lagos, in Nigeria, meet this highway at Fort Lamy. The southern road from Douala traverses Oubangui Chari colony and enters the Anglo-Egyptian Sudan through Equatoria Province, continuing to Juba on the Nile. Telegraphic communications, both wireless and land-line, were greatly expanded during the war.

French Equatorial Africa became, in August 1940, the first of all French territories in Africa to give its support to the French Committee of National Liberation. Prime mover in this step was Felix Eboué, Negro governor of Chad colony, and subsequently appointed governor general of the federation which he placed on a war footing. Governor Eboué also instituted radical reforms, including decentralization of the administration.

He died at Cairo in 1944. On May 17, 1945, the anniversary of his death, a religious memorial service was held for him at Brazzaville, troops marching past the catafalque on the parvis of the cathedral. Construction of two great air bases at Brazzaville and Fort Lamy is planned. Though at present commercially far less important than French West Africa and France's Mediterranean coast possessions, French Equatorial Africa seems destined to play a much greater role in coming decades by reason of its strategic situation. In an airplane-dominated world the truth of the dictum of a great 19th century French colonial soldier and administrator, "Who controls Chad, dominates Africa," seems less than ever debatable.

FRENCH GUIANA or **GUYANE FRANCAISE.** French colony on the north coast of South America; area about 35,000 square miles (including the separate hinterland territory of Inini, area 30,301 square miles, pop. 6,099), and a population (European or assimilated, as of 1936) of 37,000. This does not include the transient mining population, government officials, troops, numerous Indian tribes of the interior, or the penal settlements. Cayenne, the capital, has 11,704 inhabitants. The climate, bad near the coast, is reported to be healthful in the attractive but little known interior. The colony is administered by a governor assisted by a Privy Council and an elected Council General similar to such assemblies in France. The country is divided between 14 municipalities; all the inhabitants are French citizens. The colony sends one deputy to the French Parliament. Primary education is free. Educational facilities also include a college, a normal school, several Congregational schools, and private schools. In 1943–44 the colony had a school population of 3,469 in addition to 125 pupils in three schools in the penal settlement. There is little agriculture, principal crops being rice, corn, manioc, cacao, bananas, and sugar cane. Subsistence farming has been neglected and foodstuffs must be imported because of the populace's concentration on the search for gold. There are immense forests rich in valuable timber, including Inini's rose wood and cabinet wood. The most important industry is placer gold mining; raw gold long accounted for about 90 per cent of the colony's exports. Chief imports are textiles, petroleum products, staple foods and drugs; chief exports are cacao, bananas, woods, fish glue, rum, balata, gold, and hides. Imports for the first half of 1944 were valued at 68,392,000 francs, compared with 29,895,000 francs for the same period in 1943, and 33,300,000 francs in 1938. Exports for January through June 1944 were valued at 17,527,000 francs, compared with 14,023,000 francs in 1943 and 24,100,000 francs in 1938. The budget for 1945 balanced at 64,462,051 francs. There are three ports, Cayenne, St. Laurent, and Oyapock, with steamboat communication between them and inland villages on the rivers. Cayenne and St. Laurent are visited monthly by French packet boats, and Cayenne weekly by planes on the Trinidad-Brazil route of Pan American Airways. The penal settlements (founded 1854) on the Maroni River and islands near Cayenne (including Devil's Island) were to have been discontinued within 15 years after 1936. In 1938, owing to overcrowded conditions in French prisons, additional prisoners were sent to Guiana, which in 1943 had a convict population of 2,404. On March 6, 1944, the French Committee of National Liberation, at Algiers, re-established Devil's Island as a prison for persons convicted of political crimes. However, in the same year the French government decided to disestablish the penal settlements. The work of liquidation has begun, and in a few years the penal administration will have left the continent.

FRENCH GUINEA. See FRENCH WEST AFRICA.

FRENCH INDIA. A colony of France in the peninsula of India. The colony consists of five widely dispersed units (*Dépendances*) which constitute enclaves within British India. The aggregate area of the colony is 196 square miles, and at the census of 1941 the population numbered 323,295. Chandernagor (pop. 38,284) is situated on the Hoogly, north of Calcutta, and along the east side of the peninsula, from north to south, lie Yanaon (5,711), in the Godavery delta, Pondichéry (204,653), on the Coromandel coast, and Karikal (60,555), in the Cauvery delta; and on the west side lies Mahé (14,092), on the Malabar coast. The ports through which most of the foreign trade of French India pass are Pondichéry (53,101) and Karikal (19,363), chief towns of the *dépendances* of those names; Yanaon and Mahé are minor ports. Pondichéry is capital of the colony, the governor of which is N. E. Jeandin whose administration began June 17, 1945. French India joined General de Gaulle's French Committee of National Liberation on Sept. 9, 1940. There is an elective General Council, and administratively the colony is divided into 17 communes, all organized as municipalities. The colony sends one deputy to the French Parliament. All the people have the suffrage. Hindustani and Urdu are the native tongues. The 1943 budget showed 3,274,860 rupees for revenue, against an expenditure of a like amount. In the 67 primary schools and four colleges, all maintained by the government, there were, in 1942, 13,319 pupils with 371 teachers. In 1938 the budget for public health services amounted to 5,000,000 francs. Principal crops are rice, manioc and peanuts. Livestock included (1942) 35,563 cattle, 23,024 sheep, and 17,700 goats. There are three cotton mills at Pondichéry, with 87,524 spindles; and there are also a few oil presses for peanuts, an ice factory, a jute mill, and two bone mills. Textiles are the chief export. When, after the collapse of France in 1940, these exports could no longer go to French colonies, and imports from Metropolitan France became unobtainable, French India found herself in a serious economic situation. Her difficulties were removed when an agreement was reached on Jan. 28, 1941, for a customs union with British India with effect from Feb. 15, 1941. Exports to and imports from British India now became possible, thus removing barriers that had hindered the colony's progress for over a century, and by the terms of the agreement the Customs Department of British India paid the colony the sum of 600,000 rupees annually. This amount, which was supplementary to normal budgetary revenue, enabled French India to maintain payments of pensions and other obligations. Unemployment disappeared and the fiscal years of 1940 and 1941 closed with surpluses. The imports and exports at Pondichéry and Karikal in 1942 were valued at 35,749,000 francs and 17,850,000 francs respectively. Railroads with a combined mileage of 43 miles link Pondichéry with Villapuram, and Karikal with Peralam. In Pondichéry is a branch of the Bank of Indo-China.

FRENCH INDO-CHINA. A union of French territories in southeastern Asia. Comprising the colony of Cochin-China, or Cochin Chine (finally settled in 1859); the four protectorates of Cambodia, or Cambodge (proclaimed in 1862), Annam, Tonkin, or Tongking (both proclaimed in 1874), and Laos (proclaimed in 1893). The geographically detached territory of Kwangchowan (held on a 99-year lease from China since 1898) was considered administratively a part of French Indo-China until Aug. 18, 1945, when the French government formally returned it to Chinese sovereignty. The area of French Indo-China is 285,790 square miles, and the population numbers 24,161,251. While Hanoi is the capital, during the hot season most of the administrative offices are moved to Saïgon. On July 20, 1940, Vice Admiral Jean Decoux was appointed governor general by the Vichy regime of Marshal Pétain. After the Japanese occupied the country in 1940–41, Decoux was forced to do their bidding and on March 10, 1945, with other French leaders, was placed in "protective custody," charged with secretly co-operating with the Allies. Later that month Japanese attacks against French troops west of Hanoi were repulsed. The country's liberation was followed on August 17 by the appointment of Admiral Thierry d'Argenlieu as governor general succeeding Admiral Decoux; but the defeat of Japan was the signal for an uprising of Annamites against French rule. The few French contingents available to cope with this revolt were importantly aided by Chinese and British troops. On October 7, Maj. Gen. Jacques-Philippe Leclerc arrived at Saïgon with reinforcements, and toward the end of the year, the British and Chinese troops were withdrawing, leaving the French in complete control.

Component	Area, sq. mi.	Population	Capital
Cochin-China (Cochin Chine)	24,900	4,615,968[1]	Saïgon (110,577)
Cambodia (Cambodge)	69,900	3,046,432[1]	Pnom-Penh (102,678)
Annam	56,970	6,211,228[2]	Hue (28,000)
Tonkin (Tongking)	44,700	9,264,309[3]	Hanoi (134,849)
Laos	89,320	1,023,314[2]	Vien-chan, or Vientiane (16,000)
Total	285,790	24,161,251	

[1] Census of 1936; [2] estimate of 1939; [3] estimate of 1940.

The colony of Cochin-China is administered directly by French officials headed by a governor, who is assisted by a Colonial Council; the colony has one deputy in the French Parliament. The four protectorates, all of them native kingdoms, are administered by local officials; in each instance the administration is headed by a French "superior resident," who is assisted by a Protectorate Council and a Council for Economic Affairs. The most important administrative development of the year was the inclusion of Indo-China as a unit of the French Federation, giving it a status corresponding to that of a dominion in the British Empire organization.

Finance.—Each component of French Indo-China has its own budget, which it administers itself; in addition, all contribute to the general expenses of the union, and likewise receive part of certain common revenues. The general budget of the governor generalship for 1941 balanced at 147,948,530 piasters (4.41 Indo-China piasters being the equivalent of one United States dollar). The public debt amounted to 251,589,411 piasters. During the Japanese occupation the piaster became linked with the Japanese yen.

The People.—The largest and most homogeneous racial group in French Indo-China is the Annamites who number about 19,000,000. They inhabit the deltas and coastal plains, the richest lands, but have so overcrowded these regions which constitute only one fifteenth of the total area of Indo-China that the density is one of the highest in the world, often exceeding 700 inhabitants per square kilometer in the Tonkin delta. The French administration made strenuous and (until the Japanese invasion) successful efforts to colonize the sparsely inhabited central plateau of Annam with Annamites from the overpopulated coast. The native Moï, a primitive warlike race, had first to be persuaded to raise their standard of living by cultivating their lands, and to accept the peaceful Annamites as neighbors. During the decade of 1930–40, the policy resulted in an extensive cultivation of the interior plateau region and even in the establishment of cities like Ban Methuot, with its tourist hotels and thriving commerce. Other races comprise: Cambodians, 3,100,000; Lao, 1,000,000; and Moï, Kha and Meo, 600,000. There are some 435,000 Chinese in the union; and Europeans, mainly French, number 42,260.

Education and Public Health.—The system of education for French children resembles that of France: in 1939 there were 33 elementary schools with 5,504 pupils; 6 higher elementary schools for boys and girls with 792 pupils, and 3 lycées at Hanoi, Saïgon and Dalat with 1,930 pupils. For native children there were in 1939, 7,141 primary and elementary schools with 519,000 pupils and 12,200 teachers; 19 higher elementary schools with 5,640 pupils; and 4 secondary schools with 550 pupils. There were also 47 professional schools with 2,630 pupils. The University of Hanoi (organized 1917) consisted of a faculty of medicine with 262 students, of whom 25 were French; a faculty of law with 311 students, including 54 French; and a faculty of fine arts with 50 students. The French Far Eastern Institute maintained two museums and a library in which were 20,000 French and 36,000 Chinese books, some extremely rare. State hospitals provided accommodation for 400,000 patients yearly, and out-patients numbered 13,708,000. Pasteur Institutes have developed curative and preventive procedures for the principal diseases, especially malaria to which Annamites of the coastal plain who move to the plateau regions are particularly susceptible.

Production.—French Indo-China ranks third among the world's rice-growing countries, the average annual production amounting to 6,300,000 tons; most of it is grown in Cochin-China, Cambodia, the southern part of Laos, and Annam south of Cape Varella. Other important agricultural products are wheat (623,000 tons) and rubber. In the prewar decade rubber experienced a boom. From only 6,000 metric tons produced in 1925 the production increased to 58,000 metric tons in 1938. Rubber stocks, evenly distributed throughout the country, are reported to be practically intact. Lesser crops include pepper, spices, tea, sugar, copra, kapok, jute, cotton and peanuts. The forests yield hardwoods, bamboo, herbs and essential oils. Fish is an important staple of native diet. The coal mines of Tonkin produce a high grade of anthracite, the

output in 1939 amounting to 2,615,000 metric tons; zinc, tin, wolfram, tungsten and iron ore are also mined. By 1936 12,355,000 acres of land had been brought under irrigation, and the French administration continued an expansion program in order to resettle large numbers of people from the over-populated delta regions. Nearly 60,000 kilowatts of electric power were derived from hydroelectric and other installations. Industries on a small scale included the manufacture of cement, laces, glass and pottery, leather, matches, fish sauces and cigarettes.

Foreign Trade.—Nearly half of the external commerce of the union before the war was with France, other markets being Hong Kong, the United States, Singapore, China and Japan. Rice and rubber were the principal exports, and others included fish, coal, cattle and hides, wheat, pepper, zinc and tin; the chief imports were cotton and silk goods, metalware, petroleum products, and automobiles. In 1939 the exports were valued at 3,494,724,000 francs, and the imports at 2,382,262,000 francs. Most of the overseas trade was with Japan after enemy occupation of the country. During that period production of all major export commodities dropped to the lowest levels, with the single exception of rice. Prior to the war the rice export to Japan had diminished annually from the beginning of the century until in the period 1933–38 only 2 tons were shipped. In 1941, however, Japan imported 854,577 tons, 905,401 tons in 1942 and 978,699 tons in 1943 when she absorbed all but about 18,000 tons of the Indo-Chinese production. During the last years of the war Indo-China became Japan's richest rice granary.

Communications.—Before the war there were 2,093 miles of railroads, which linked all important centers and extended to Yunnan (Kunming), in China; subsequently, the line northwest of Pnom-Penh was continued to connect with the Siam railroad system. Some 10,800 miles of the 18,000-mile highway system were paved before the war, and the mileage of all-weather roads was considerably increased by the Japanese for military purposes.

Principal Events of 1945.—On May 24, 1945 General de Gaulle, as head of the provisional government of the French Republic, declared: "The Indo-Chinese Federation will enjoy in the frame of the French Union an economic autonomy allowing it to attain its full agricultural, industrial, and commercial development and to realize in particular the industrialization which will permit Indo-China to cope with its demographic condition. Thanks to this autonomy, and freed from all discriminatory regulation, Indo-China will develop its commercial relations with all other countries and notably with China, with which Indo-China, like the rest of the French Union, expects to have close friendly relations." After Japan's surrender in August, British and Chinese troops entered the country from the south and the north as a temporary measure to disarm the Japanese occupants, pending the arrival of French forces.

FRENCH IVORY COAST. See FRENCH WEST AFRICA.

FRENCH LITERATURE. See FRANCE—*The Literary Balance Sheet.*

FRENCH NAVY. See NAVAL PROGRESS.

FRENCH OCEANIA. The groups of islands scattered over the eastern Pacific which constitute a single colony under the name of French Establishments in Oceania. The total area of the "French Establishments" is 1,520 square miles, and the population on Nov. 1, 1941, was 51,221. The Society Islands, most important of the constituent groups, contain Tahiti (600 square miles; pop. 23,133), the chief town of which island, Papeete (pop. 11,614), is the capital of the colony; another of the Society Islands is Moorea (50 square miles; pop., 2,279). Other principal groups or single islands within the colony consist of the Marquesas (pop. 2,699), Tuamotu group (4,681), Leeward Islands (11,891), Gambier (1,504), Rapa (3,621), Makatea (1,248), and Maiao (165). Clipperton Island, some 700 miles southwest of Mexico, is administered as part of the colony. Advisory councils assist the governor of the colony. The 1941 budget balanced at 28,800,000 francs.

On Tahiti and some other islands are extensive coconut plantations; other agricultural crops are sugar cane, vanilla, and a variety of vegetables and fruits. The chief industries are the making of copra, sugar and rum, and the production of phosphates. Shallow waters around Tahiti yield pearls and mother-of-pearl. Exports of French Oceania in 1944 were 223,900 tons valued at 179,900,000 francs, as compared with the 1938 figures of 135,000 tons valued at 47,600,000 francs. The 1944 imports amounted to 30,400 tons valued at 172,600,000 francs, as compared with 1938 imports of 22,000 tons valued at 63,200,000 francs. French Establishments in Oceania was the first of the country's colonies to repudiate the Vichy regime and give its support to General de Gaulle.

FRENCH SOMALILAND. A colony of France, on the gulf of Aden in northeast Africa, between Italian East Africa (Eritrea) and British Somaliland. It reaches inland a distance of 56 miles and has an area of 9,071 square miles. The population (estimated July 1, 1944) of 40,100, includes about 14,056 Somalis, 21,546 Danakils, 3,392 Arabs, and a few hundred each of Jews, Ethiopians, and Hindus, with about 627 Europeans (480 French) in Djibouti, the capital, which has a total population (1944) of 10,421. The colony is ruled by a governor and an Administrative Council. The budget for 1944 balanced at 48,000,000 francs. In 1938 there were 19 schools (13 Islamic, 4 French, 1 Hindu and 1 Jewish) with 938 pupils. In the same year the public health services expended 1,300,000 francs. Salt mining and coast fishing are the main industries. There are said to be deposits of gypsum, mica, amethyst, sulphur, and petroleum. Imports (chiefly cotton goods, coal, cattle, and sugar) for the year 1944 had an estimated value of 333,600,000 francs; exports (coffee, ivory, hides and skins, salt, and animal wax) for the same period were valued at 214,000,000 francs. Reckoned in number of tons handled, imports for 1944 amounting to 63,600 tons were not far below the 1938 tonnage of 68,100. Exports for 1944 amounting to 78,500 tons, were, however, little more than half the 1938 tonnage of 140,300. Much of the colony's external commerce had been in transit trade, Djibouti being connected by a railway nearly 500 miles long with Addis Ababa, the Ethiopian capital. In 1943 the transit trade had a value of 400,000,000 francs. In the same year, and also in 1944, Britain and her possessions enjoyed a larger share of the trade than did France and her possessions.

On Dec. 29, 1942, following the occupation of Italian East Africa by the British and the res-

toration of Ethiopia as an independent state, French Somaliland joined the Fighting French.

FRENCH SUDAN. See FRENCH WEST AFRICA.

FRENCH TOGO. See TOGO, FRENCH WEST AFRICA.

FRENCH WEST AFRICA. A federation of eight colonies and one mandate extending, west to east, from the Atlantic Ocean and the frontiers of the Spanish colony Rio de Oro to French Equatorial Africa; on the north it is bounded by Algeria and Libya; and on the south it borders the Gulf of Guinea. The total area is 1,836,560 square miles, and the population in 1940 amounted to 15,767,892 (33,961 Europeans, of whom 25,551 were French). Dakar is the seat of the federal administration, which is headed by a governor general. The federated colonies constituting French West Africa are as follows:

	Area sq. mi.	Population	Colonial capital
Senegal	77,600	1,698,000	St. Louis (33,589)
Mauritania	322,000	383,000	(1)
French Sudan	592,000	3,635,073	Bamako (32,761)
Guinea	96,900	2,065,527	Conakry (10,000)
Ivory Coast	184,000	3,981,459	Abidjan (26,143)
Dahomey	43,200	1,289,128	Porto Novo (27,483)
Niger	499,000	1,809,576	Niamey (3,000)
Dakar (and circumscription)	60	126,129	Dakar (100,003)
Togo (mandate)	21,800	780,000	Lomé (14,380)
Total	1,836,560	15,767,892	

[1] Administrative headquarters of Mauritania are at St. Louis, Senegal.

The governor general of French West Africa is assisted by a council; each colony is headed by a governor or lieutenant governor, in some instances aided by a colonial council. There is a general budget for the federation covering expenditures on transportation services, other works of general interest and social services, revenue being derived from the customs and shipping dues of the colonies; other revenues of the colonies finance separate colonial budgets for local expenditures. The fiscal year runs from October 1 to September 30. The general budget for 1944–45, as made executory together with its annexed budgets, amounted to 3,253,856,860 francs. The 1945–46 general budget was 1,445,517,000 francs. In 1936–37 there was a total school population of 68,310, of whom 10,848 were in private schools, and 350 in Moslem schools. The state school system, in addition to numerous rural and urban primary schools, included 7 higher primary, 2 secondary, and 13 technical schools. Principal agricultural products are peanuts, coffee, cacao, cotton and bananas. Imports are mainly textiles, fuel oil, machinery, foods, and beverages. Leading agricultural exports in 1944 to North Africa and the United Nations in order of tonnage were peanuts and peanut oil, palm kernels and palm oils, cacao, rubber and copra. The 1944–45 peanut crop, the principal factor in the export trade, had been expected to amount to 400,000 metric tons, but only 280,000 were marketed, due largely to adverse weather conditions. The target set for the 1945–46 crop is 500,000 tons of unshelled peanuts. All the 1943–44 rubber, copra and sesame production was sold to the Allies. The normal rubber production is small. West Africa produced 6,000 tons in 1944, nearly all wild rubber; after September of that year the entire production was shipped to the United States. In 1944 a bauxite deposit described as "practically inexhaustible" was discovered in Guinea. Diamond production in 1944 amounted to 60,000 carats, compared with 35,000 carats in 1943. This increase was due to the much higher price paid by British buyers.

Dakar, considered one of the less important French ports before the First World War, by 1938 had risen to fourth place, ship clearances that year numbering 3,433. After Germany's defeat in May 1945 the French government immediately prepared plans for Dakar's development as a major naval and aviation base. These will soon result in its becoming, like Gibraltar, Suez and Panama, one of the great world security bases.

French West Africa has no important manufacturing industries, but there are a few domestic industries processing agricultural products to produce peanut oil, soap, bags and shea oil. A fisheries bureau was established in 1942; it promises an increasing postwar development.

Railway mileage totals 2,724 and consists of several unconnected lines, of which the chief is the Dakar-Niger line. As in metropolitan France the end of the war with Germany revealed a transportation crisis. Of 323 locomotives, 50 were unrepairable, and a third of the remainder were being repaired. The situation was somewhat alleviated by the arrival of 14 powerful American locomotives.

On Jan. 13, 1945, the French opened West Africa to private trade with the United States. A three-day economic conference was held in February at Dakar, attended by the chiefs of the economic services of the West African colonies and presided over by Governor General Digo. On April 30 the fair of the Dakar Exposition opened with exhibits showing the war effort made by the federation.

FRIENDLY ISLANDS. See WESTERN PACIFIC ISLANDS, BRITISH, Section 3.

FRIENDS, The Religious Society of. The Religious Society of Friends (Quakers) is a spiritual movement founded by George Fox in England in the middle of the 17th century. Its central doctrine, is that the Light of Christ dwells in each individual and requires a way of life, which emphasizes equality, simplicity, sense of community and non-violence in all relationships. In methods of worship Friends meet in an atmosphere of quiet reverent waiting under the leadership of the Divine Guidance without the aid of liturgy, sacrament or formal program. While there are recorded ministers in the society, lay members also participate in the ministry.

The Society of Friends is composed of 54 Yearly Meetings and organized groups in 30 countries with an approximate membership of 164,000. In the United States and Canada there are now 27 Yearly Meetings with a total membership of 113,000. Eleven of these Yearly Meetings belong to the Five Years Meeting with headquarters at 101 South 8th Street, Richmond, Ind. *The American Friend* is their official publication. Six of the Yearly Meetings belong to the Friends General Conference with headquarters at 1515 Cherry Street, Philadelphia, Pa.[1] The others are independently organized.

The American Friends Fellowship Council, 20 South 12th Street, Philadelphia, Pa., co-operates

[1] Their official publication is *The Friends Intelligencer.*

with all groups of Friends in the United States and Canada and directs the Wider Quaker Fellowship for persons belonging to other religious groups who desire a closer affiliation with Friends. The Friends World Committee for Consultation draws all groups of Friends together in its European, American and Far Eastern Sections.

The American Friends Service Committee, Philadelphia, Pa., renders a service of relief and rehabilitation. Through the Foreign Service Section, food, clothing and medicine has been distributed to thousands in need in France, Italy, India and China. A service to refugees has been conducted in Spain, Portugal, North Africa, as well as in this country. The Social-Industrial Section has made special studies of conditions among the miners and sharecroppers, studies of race relations, and rendered special services to Japanese-Americans in their relocation. The Peace Section has conducted a series of International Institutes and Seminars. Friends have cooperated with Mennonites, Brethren and other church agencies in Civilian Public Service for Conscientious Objectors. Of the 10,000 men in Civilian Public Service Camps about 2,000 are under the care of Friends. They have engaged in manual labor in forestry and soil conservation projects, served as human "guinea pigs" in medical research and as attendants in mental institutions.

In all these ways Friends strive to exemplify their faith in the oneness of religion and life.

LESLIE D. SHAFFER,
Secretary, American Friends Fellowship Council.

FRUITS. See APPLES; CITRUS FRUITS; PEACHES; PEARS, etc.

FUELS, Synthetic Liquid. See MINES, U. S. BUREAU OF.

FULLER'S EARTH. A rapid recovery in the production of fuller's earth is under way, according to the United States Bureau of Mines. Owing to heavy competition from activated earths and synthetic substitutes, fuller's earth steadily lost ground after 1930. But wartime demands for petroleum products, shortages of competitive materials, and new absorbent uses all contributed to the recovery that nearly reached record levels. Only in 1929 and 1930 was volume higher.

Fuller's earth sold or used by producers in 1944 was 294,737 short tons valued at $3,297,064, as compared with the 247,258 tons valued at $2,664,027 of 1943 and the 204,244 tons valued at $2,139,670 of 1942. The average value per ton of fuller's earth produced in the United States rose from $10.77 in 1943 to $11.19 in 1944.

FUNAFUTI. See WESTERN PACIFIC ISLANDS, BRITISH, Section 2.

FUR SEAL ISLANDS. See PRIBILOF ISLANDS.

G

GABON or GABUN. See FRENCH EQUATORIAL AFRICA.

GALAPAGOS ISLANDS. A group of 12 large and several hundred small islands, officially known as the Archipiélago de Colón (Columbus Archipelago), comprising a territory of Ecuador in the Pacific Ocean, 650 miles west of Ecuador proper. They take their name from the giant tortoises, called *galápagos* in Spanish, which inhabit the islands. The total area has been estimated at from 2,868 to 3,028 square miles, with a population (1941) of 2,156. Since Charles Robert Darwin's visit aboard the *Beagle* a century ago the islands have been aptly termed a zoologist's paradise, owing to the great number of unique species discovered by every scientific expedition. By arrangement with Ecuador some of the islands were fortified and used as air bases by the United States during the war, for defense of the Panama Canal. After Japan's surrender negotiations were undertaken looking toward acquisition of these bases by the United States either by sale or long-term lease.

GAMBIA. See BRITISH WEST AFRICA.

GAMBIER ISLANDS. See FRENCH OCEANIA.

GAMELIN, Maurice Gustave, French Army officer: b. Sept. 20, 1872. General Gamelin was named supreme commander of French troops on June 6, 1939, and later of British Expeditionary Forces. On May 19, 1940, he was replaced by Gen. Maxime Weygand, after the numerically superior German forces broke through the French defenses. In early September 1940, he was interned by the Vichy government. He was formally arrested on November 17, and imprisoned. Berlin announced on April 5, 1943, that he had been taken to a German prison by Nazi authorities to prevent the establishment of a counter-government under Allied sponsorship. With several other prominent Frenchmen, General Gamelin was freed by American troops on May 5, 1945, after months of imprisonment at Itter Castle, Austria. The 73-year-old officer is the son of a general and a graduate of St. Cyr. In the First World War, he distinguished himself in the battle of the Marne. In 1938 and 1939, as Europe approached total war, he was responsible for partial mobilization of French forces. He was one of the French leaders who urged intervention in the German-Czechoslovak crisis, despite his nation's unpreparedness.

GAS, Manufactured, Mixed and Natural. According to figures made public by the American Gas Association, the gas utility industry's revenue from all classes of sales totaled $1,146,216,000 in the 12-month period ending Sept. 30, 1945, a gain of 3.6 per cent over revenues of $1,106,894,300 in the corresponding period ended a year earlier. Revenues from the sale of gas for residential purposes in the 1944–45, 12-month period amounted to $720,261,800, as compared with $690,427,800 in 1943–44, an increase of 4.3 per cent; commercial sales in 1944–45 totaled $130,760,600 as compared with $121,710,800 in the earlier year, a gain of 7.4 per cent; industrial sales aggregated $288,201,800 in 1944–45 as compared with $286,468,800 in 1943–44, a gain of 0.6 per cent.

On Sept. 30, 1945, the gas industry was serving 19,930,600 customers, an increase of 1.6 per cent over the 19,612,500 served a year earlier. Residential consumers numbered 18,800,400, as against 18,532,000 a year earlier, an increase of 1.4 per cent; commercial customers, 1,032,500 in 1945, 986,200 in 1944, an increase of 4.7 per cent; and industrial customers, 85,500 against 82,600 an increase of 3.5 per cent. Sales of manufactured and mixed gas in the 12-month period ended Sept. 30, 1945, totaled $452,992,500; sales of natural gas, $693,223,500 in the same period.

GAY, Maisie, English actress: b. London, Jan. 7, 1883; d. Kingsdown, England, Sept. 13, 1945. Maisie Gay was a noted musical comedy star of American, Australian, and British productions for over 40 years. Educated in Germany and at the North London Collegiate School, Miss Gay made her stage debut at Blackpool in 1903 in the chorus of *The Cherry Girl.* The following year she joined George Edwardes' company on tour in *A Country Girl* and subsequently succeeded to the leading part of Nan, a role which she played more than 1,000 times between 1904 and 1907. She made her London debut in 1908 as Fifi in *The Waltz Dream* and three years later appeared for the first time in the United States as Madame Blum in *The Quaker Girl,* which opened at the Park Theater in New York on Oct. 23, 1911. The next year she appeared as Maisie Green in *Phyllis* at the Cort Theater in Boston, and in 1914–15 toured as Adelaide Fontaine in *High Jinks.* She returned to the United States in 1922 to appear in *Pins and Needles* at the Schubert Theater in New York. During the next years she appeared in many English revues, including *Snap* (1922), *London Calling* (1923), *Charlot's Revue* (1924; 1925), *This Year of Grace* (1928), and *Cochran's Revue* (1930). In 1929 she toured the principal Australian cities, and the next year entered the films and was seen in *To Oblige a Lady* and *The Old Man.* A volume of her reminiscences, *Laughing Through Life,* was published in 1932.

GEIGER, Roy Stanley, United States Marine Corps officer: b. Middleburg, Fla., Jan. 25, 1885. Lieutenant General Geiger was chief field commander of the United States Marine Corps during the final weeks of the Pacific war. At the time he was appointed to this post, he was directing American forces in the Okinawa mop-up, having taken over after the death of Lieut. Gen. Simon B. Buckner, Jr. (q.v.); he went to Pearl Harbor on June 30 (1945) to assume his duties as commanding general of all Fleet Marine forces in the Pacific Ocean areas. General Geiger was Marine General Vandegrift's air officer on Guadalcanal, and for his work with aviation units in that theater, from September to November 1942, was awarded the Gold Star in lieu of a second Navy Cross. He succeeded General Vandegrift as commander of marine forces in the Southwest Pacific on Nov. 9, 1943. He was later chief of the 3d Marine Amphibious Corps. General Geiger joined the Marine Corps in 1907. One of the service's most thoroughly trained officers, he is a distinguished graduate of the Command and General Staff School (1925), the Army War College (1929), and the Naval War College (1940). He completed his aviation training at Pensacola, Fla., in 1916. He holds the Navy Cross for his First World War service. He was promoted lieutenant general, June 19, 1945.

GEM STONES. According to the United States Bureau of Mines, the value of uncut stones, from domestic sources, used in jewelry and related industries, approximated $41,000 in 1944, which was substantially lower than the $67,000 and $150,000 reported in 1943 and 1942 respectively. The professional gem miner sought strategic minerals; the amateur collector did not have gasoline or tires to pursue his hobby; and the tourist, principal purchaser of domestic gem stones, was almost nonexistent. As producers, the leading states ranked as follows: Arizona, Wyoming, Colorado, Washington, Montana, and Oregon. Turquoise was the leading gem produced, its value being about $17,000. Agates, jaspers, and related quartz minerals probably were next in importance. It was reported that from 3,000 to 4,000 pounds of jade (nephrite) were mined in the Lander, Wyo., field. The Montana sapphire industry had a poor year: the single mine that was operating produced about 4,500 ounces of culled sapphire, primarily for industrial use.

Although 1944 was not quite as good a year in the diamond industry as 1943, it was much better than might be expected under wartime circumstances. Because of the war, accurate statistics of diamond production are not available, but reliable estimates indicate an approximate world production in 1944 of 11,500,000 carats valued at about $40,000,000. This increase in caratage over the 8,351,957 carats in 1943 was due largely to the greater production of crushing bort from the BCK mines in the Belgian Congo; to expansion of output in Sierra Leone, the Gold Coast, and the South West African alluvial mines; and to an appreciably larger production in the South African pipe mines. Of the total, some 80 per cent was industrials and 20 per cent gem stones. The demand for both was excellent in 1944 and stocks continued to decrease, consumption again exceeding production, particularly of industrial grades. The American retail trade prospered in 1944 and diamond sales probably reached a peak, topping those of 1943 slightly.

The emerald mines of Colombia were not operated in 1944. The Burmese, Siamese, and Indo-Chinese gem mines (largely sapphire and ruby) may have been operated on a small scale by the Japanese. Ceylonese mines were bled of labor by the island graphite mines. The production of these gems therefore was small in 1944.

Imports of precious and semiprecious (real and imitation) stones, exclusive of industrial diamonds, in 1944 totaled $77,529,806, 8 per cent more than in 1943. Total imports of diamonds in 1944, with 1943 figures in parentheses, were: rough or uncut 896,547 (751,240) carats, valued at $43,445,219 ($37,443,240); cut but unset 169,097 (193,701) carats valued at $29,263,121 ($31,458,089).

GENERAL EDUCATION BOARD, The. An institution incorporated by an act of Congress in 1903, with the stated object of promoting education within the United States of America without distinction of race, sex, or creed. The present program of the board is restricted almost entirely to the support of educational work in the Southern states.

The board is empowered to spend the income and the principal of its funds. Among its appropriations in 1945 were: $70,000 to the University of Alabama for its public administration program,

of which amount $30,000 is for the support of the Bureau of Public Administration and $40,000 for advanced regional fellowships in public administration; $95,000 to the Phelps-Stokes Fund, New York City, toward a program for the Negro rural church, including the training of Negro rural ministers; $24,700 to the George Peabody College for Teachers, Nashville, Tenn., toward support of a Regional Materials Service in connection with the movement to have education play a more vital role in the development, understanding, and utilization of the natural and institutional resources of the South; $76,900 to be apportioned among the universities of North Carolina, Arkansas, Virginia, the American Council on Education, Alabama State Department of Education, and Alabama Polytechnic Institute, for preparation and testing of educational materials dealing with the natural and other resources of the South; $19,470 to the University of Kentucky toward a study of the actual and potential utilization of the forest resources of the eastern Kentucky highland region; $45,000 to the Southern Highland Handicraft Guild and $25,000 to the University of Tennessee toward the support of a program of craft education in the southern highlands; $20,000 to Harvard University for visiting fellowships in the Graduate School of Business Administration for faculty members of southern institutions; $30,000 to the Nashville School of Social Work toward its support for a three-year period; $25,000 to Our Lady of the Lake College, San Antonio, Texas, toward the support of its Graduate School of Social Service; $25,000 to the United Negro College Fund, Inc., to aid in the raising of a fund for the maintenance of privately supported institutions for Negro education; $15,770 for salaries and traveling expenses of state agents for rural schools for Negroes in the state departments of education of southern states; $41,000 to the Georgia School of Technology toward the purchase of scientific instruments and equipment; $25,940 to the University of Chicago for study and development of new-type verbal tests of general intelligence applicable to all children irrespective of social and cultural status; $15,000 to the Alabama Polytechnic Institute toward support of a program in rural community development; $14,000 to the Mississippi State Department of Education toward support of summer training courses for white and Negro teachers and health workers in connection with the development in public schools of a coordinated program of health education and health service; and $6,200 to North Carolina State Department of Public Instruction for a similar purpose.

Officers.—Walter W. Stewart, chairman of the board of trustees; Raymond B. Fosdick, president; Albert R. Mann, vice president and director; William W. Brierley, secretary; Edward Robinson, treasurer; George J. Beal, comptroller; Thomas M. Debevoise, counsel; Chauncey Belknap and Vanderbilt Webb, associate counsel. The offices of the board are at 49 West 49th Street, New York 20, New York.

H. B. VAN WESEP,
Director, Office of Publications, The Rockefeller Foundation.

GENERAL FEDERATION OF WOMEN'S CLUBS. See WOMEN'S CLUBS, GENERAL FEDERATION OF.

GENOCIDE. A newly coined word meaning mass slaughter or extermination of racial and national groups, such as certain Nazi officials are alleged to have carried out against the civilian populations of some of the German-occupied countries during the Second World War. The word, first used in count 3 of the indictment drawn by the United Nations in October 1945 against the German war criminals, is said to have been coined by Prof. Raphael Lemkin of Duke University. It is derived from the ancient Greek word *genos,* meaning race or tribe, and the Latin *cidere,* meaning to kill.

GEODETIC SURVEY. See COAST AND GEODETIC SURVEY, UNITED STATES.

GEOGRAPHICAL SOCIETY, American. See AMERICAN GEOGRAPHICAL SOCIETY.

GEOLOGICAL SURVEY, United States. Concentrating its industrial as well as its military might on an early conclusion of the war, the United States naturally took further heavy toll of its mineral resources in 1945. Commercial supplies of mercury, chromium, vanadium, tungsten, manganese, etc., vital to the success of modern arms, dwindled to alarmingly low states, while reserves of petroleum, without which the war of aggression could not have been waged, were taxed to the limit, some pools in the ground having been endangered by far too heavy withdrawals. It was the Geological Survey's mission to point the way to replenishment by locating new deposits, particularly of the metals and petroleum, and to advise concerning their recovery and utilization. For the prosecution of its geologic investigations, for its work in the fields of water resources, mineral leasing, and land classification, and for its extensive topographic and other mapping programs, all of which looked to the restoration of a sound national economy, the Geological Survey had more than $12,500,000 for expenditure during the year, about one-half of which was made available by direct appropriation of Congress and the other half by co-operative agreements with states, counties, and municipalities and by transfer from other federal agencies. The funds thus placed at the disposal of the survey were wisely administered in activities productive of the materials and data needed for war, in the course of which many new techniques and methods were developed that will be of incalculable value in the peaceful years ahead.

Wartime Geological Investigations.—Wartime geology's leading exponent was a section of the survey known as the Military Geology Unit and organized at the outset of hostilities at the request of the army engineers. This unit reached the peak of its efficiency and service in 1945 when the studies of foreign terrain were expanded markedly and 50 members of its staff were dispatched to the theaters of operation either as scientific consultants in combat zones or on assignments connected with operational intelligence. In the peaceful, neighborly climes of other American republics the survey continued its co-operative investigations of mineral deposits. Under the auspices of the State Department and the Interdepartmental Committee for Cultural and Scientific Cooperation, thirteen different mineral commodities were studied in Mexico, Cuba, Chile, Brazil, the Dominican Republics, and Haiti. In the continental United States, mineral fuels investigations looked primarily to obtaining geologic data basic to the search for additional supplies of petroleum and to appraising the potentialities of substitutes for liquid petroleum even though the survey confidently expects to find new sources of supply. The likely sources of substitutes in large quantity are oil shales and the low-rank coals, especially those of the Rocky Mountain states. In the field of metallic minerals emphasis was placed on fun-

damental geologic studies of the principal ore-producing districts in order to provide a proper foundation for future exploration.. At the end of the fiscal year field work in 21 major districts was under way, and some of the work already had produced worthwhile results. The project at San Manuel, Ariz., is an example; there the Geological Survey co-operated with the Bureau of Mines in a drilling program that indicated copper reserves of possibly as much as 64 million tons of ore averaging 0.8 to 0.9 per cent of copper, which is a small fraction of a per cent below the 1.0 to 1.1 per cent copper ores worked in large volumes in Utah and Arizona. Many smaller projects, involving work on eight of the so-called strategic minerals, were completed in 1945. Bauxite investigations, begun in 1941 and carried on jointly with the Bureau of Mines, were practically concluded during the year. They increased, by about 10 million tons of ore, the known national reserves of approximately 75 million tons. Fluorspar production also gained impetus from the survey's field work in 15 states, while investigations of other non-metallic deposits, such as talc, clay, and corundum, added to the nation's storehouse of mineral reserves. In discussing mineral reserves, the work of the survey's Alaskan geologists is also deserving of special mention, for their investigations of a large number of mineral deposits in the territory have added immeasurably to the nation's mineral wealth. During the 1944–45 field season their efforts were chiefly directed to studies of petroleum, coal, quicksilver, copper, tin, and zinc, 19 projects in all having been brought to successful conclusion. Along with these studies was continued the work of the specialized unit that compiles the aeronautical pilotage maps and charts from photographs furnished by the Army Air Forces.

Topographical Work.—The survey's principal mapping unit, the Topographic Branch, devoted the major part of its work to the production of maps for the War Department. Prepared from aerial photographs in the Arlington, Va., Chattanooga, Tenn., Rolla, Mo., and Sacramento, Calif., offices of the survey, the maps in manuscript form covered thousands of miles of territory at home and abroad; but chiefly of lands beyond the seas. More than 64,000 square miles of foreign soil were mapped during the year, about 60,000 of them before V-E Day. Similar maps of areas in the United States published during the year included 183 maps of regions designated by the War Department as strategic. A total of 586 quadrangles were thus covered by the survey between the beginning and near-end of the war. Work on the millionth-scale map, a project begun years ago by Great Britain, Russia, the United States and other nations for making a map of the world on a uniform scale, proceeded to the point of preparing for publication Sheets H–14 (Austin), H–15 (Mississippi Delta), I–17 (Savannah), I–18 (Hatteras), K–10 (Mt. Shasta), K–17 (Lake Erie), and L–10 (Cascade Range). Each sheet of the millionth-scale map comprises six degrees of longitude and four degrees of latitude, or an area somewhat smaller than that of the State of Wyoming. Continuing its work on the Transportation Map of the United States, the survey published during the year 14 sheets covering areas in New Mexico and had eight others of parts of North Carolina ready for publication. Topographic surveying was done in 35 of the states. The work was carried on in co-operation with 19 of the states and with the Tennessee Valley Authority. Special projects included 10 maps for use in survey investigations of strategic and critical minerals; 16 in furtherance of flood-control work by the army engineers; and five for irrigation and reclamation projects of the United States Bureau of Reclamation.

Water Investigations.—Through its numerous field offices maintained for the purpose, the Geological Survey continued its investigations of surface and underground waters, more than a third of the overall cost of which in 1945 was born by states and municipalities. Other federal agencies—Office of the Chief of Engineers; Mississippi River Commission, War Department; Bureau of Yards and Docks, Navy Department; and others—provided nearly a million dollars for water resources work that could not be financed by direct appropriation or included in co-operative programs. Records of the stage, quantity, or availability of surface waters were collected at about 5,600 gaging stations distributed throughout every state of the Union and the Territory of Hawaii. These records are used as the basis for constructing, operating, and administering municipal and industrial water supplies, irrigation systems, power plants, flood-control works, and the like. Ground-water investigations, relating to water from which wells and springs are supplied, covered the source, occurrence, quantity, and head of these waters; their conservation and replenishment; their availability and adequacy for domestic, industrial, irrigation, and public supplies, and as watering places for livestock; and the methods of constructing and utilizing wells and of improving springs. In 1945 there were periodic measurements of water levels or of artesian pressure in about 7,000 observation wells. A study of these records will aid in determining the depletion of underground waters caused by the numerous war industries and other war establishments that obtained their supplies from wells, and in providing against possible shortages. Many of the engineers in ground-water work were also assigned to overseas combat zones, in military or civilian capacity, for water-supply work. Nearly 7,000 analyses of water samples were made in the survey's laboratories, many of them representing studies of water supplies for army and navy establishments and for munition plants and housing developments.

Mineral Classifications.—The fiscal year's end showed an increase of 20 per cent over 1944 in mineral classification matters coming before the survey for technical advice, more than 13,000 cases, each involving one to many geologic determinations, having been acted on during the year. In addition, initial or revised definitions of the known geologic structure of seven producing oil or gas fields were prepared and promulgated, increasing the net area so defined in nine public-land states to 1,888,328 acres on June 30, 1945; geologic appraisal was made of 80 unit-plan submissions; and 53 special reports were rendered to the General Land Office on new discoveries of oil or gas on or adjacent to federal lands, including 22 applications for the royalty benefits accorded by law for the discovery of new oil and gas fields or deposits during the national war emergency. Water and power classification work added 110,278 acres of power-site reserves in 22 states and Alaska; maps representing 180 miles of stream valley and 18 dam sites; final action involving hydraulic determination on 267 cases received for report from departmental sources and the Federal Power Commission; and water-power classification on 1,939 cases, which also involved mineral classification. A marked increase was al-

so recorded in the survey's mineral lease supervision on public lands. More than 7,000 oil and gas properties were under supervision at the end of the fiscal year, aggregating 4,596,053 acres in 20 states and Alaska, an increase of 32 per cent in the number of properties and nearly 48 per cent in the average acreage under supervision at the close of the previous year. Drilling on public lands included the spudding of 566 wells, and the completion of 626 wells, 440 of which were productive of oil and gas and 186 of which were barren. The production of potash was maintained at a high level, and sodium plants ran at maximum capacity to meet war-induced demands for chemical products used in the manufacture of bombs, percussion caps, shells, smokeless powder, etc.

Publications.—The survey's publication work was stepped up from 804 publications in the previous fiscal year to 852 in 1945. The number included one professional paper, 13 bulletins, and 24 water supply papers in the regular series of reports, a number of miscellaneous publications, and a variety of maps, among which the preliminary maps of the oil and gas investigations series should be specially mentioned. These are the result of the program of regional geologic studies, begun in July 1943, in many states where there were possibilities for the discovery of new supplies of petroleum and natural gas. They were released at a rate of approximately four each month. At the close of the year 35 preliminary maps and nine preliminary charts in the oil and gas and war minerals investigations series had been issued. A total of 2,396,731 publications of all types was received and 1,228,424 were distributed. Lastly, a number of unusual devices were made during the year in the survey's shops that supply the scientific and technical staffs with necessary instrumental equipment. Among these were a Graph Subdivider, a Tick Graduator, a Stereo Plotter, and an attachment for aerial continuous strip camera whereby distortions in a photograph are largely eliminated. The subdivider is used to convert graphical records of the gage heights of rivers into figures representing the daily mean discharge. The Tick Graduator divides the distances between degree lines on map grids into 60 equal parts representing minutes, and cutting the graduations (called "ticks") through the photographic emulsion on glass plates. The Plotter portrays on maps contour lines derived by the floating dot method from vertical aerial photographs.

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GEOPHYSICS. See under PHYSICS.

GEORGIA. South Atlantic state, United States; one of the original thirteen states. Population (1940): rural, 2,049,915; urban, 1,073,808; total, 3,123,723. Land area, 58,518, divided into 159 counties. Principal cities, with 1940 populations: Atlanta, the capital, 302,288; Savannah, 95,996; Augusta, 65,919; Macon, 57,865; Columbus, 53,280.

Chief State Officers, 1945.—Governor, Ellis G. Arnall; secretary of state, John B. Wilson; treasurer, George B. Hamilton; comptroller, Homer C. Parker; attorney general, T. Grady Head.

Judiciary.—Chief Justice of the Supreme Court of Georgia, R. C. Bell; associate justices, W. H. Duckworth, W. Frank Jenkins, Lee B. Wyatt, Warren Grice, William Y. Atkinson.

Legislature. — Georgia's General Assembly (Senate, 52 members; House of Representatives, 205) meets biennially in odd years on the second Monday in January.

Education.—At last report (1943–44), there were 3,613 public elementary schools in the state, with 16,415 teachers and 593,776 pupils. The average yearly salary of elementary school teachers was $781. There were 1,402 schools with high school grades, employing 6,339 teachers and enrolling 134,681 students. High school teachers earned an average yearly salary of $1,195. Education in Georgia is compulsory for all children between the ages of 6 and 16, inclusive.

Finances.—Following is a statement of finances for the fiscal year 1944–45, supplied by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$26,380,641.59
Receipts, 1944–45	64,077,071.91
Total	$90,457,713.50
Disbursements, 1944–45	57,917,302.11
Balance, beginning of fiscal year 1945–46	$32,540,411.39

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Production Preliminary 1945
Corn (1,000 bu.)	43,561	40,802	46,467
Oats (1,000 bu.)	8,644	13,080	14,700
Wheat (1,000 bu.)	1,824	2,964	2,821
Barley (1,000 bu.)	112	200	209
Rye (1,000 bu.)	146	170	162
Cotton (1,000 bales)	972	810	615
Hay:			
Tame (1,000 tons)	645	688	831
Pecans (1,000 lb.)	21,538	33,500	38,500
Peanuts (1,000 lb.)	472,918	683,620	734,300
Sweet potatoes (1,000 bu.)	8,018	8,272	8,742
Tobacco (1,000 lb.)	70,679	93,780	109,215
Potatoes (1,000 bu.)	1,451	1,363	2,052
Peaches (1,000 bu.)	4,997	4,590	8,091
Pears (1,000 bu.)	347	500	502
Grapes (tons)	1,690	2,200	2,300

GEORGIAN SOVIET SOCIALIST REPUBLIC. See UNION OF SOVIET SOCIALIST REPUBLICS.

GERMAN MEASLES. See MEDICINE.

GERMANY. Germany today is a joint American-British-Russian-French occupation area, lacking the prerogatives and characteristics of a sovereign nation. It has no central government or any national authority entitled to designate such a government, no national administration, legislature, or executive. Even its national borders are not clearly defined. Germany's present status is supposed to last for an indefinite period, originally planned for some decades, but which might be reduced to two years. Thereafter, a restoration of a sovereign German state is in prospect, with Allied occupation forces to be withdrawn or confined to certain vital districts. Neither the constitution of a future Germany nor possible restrictions to be imposed upon its government have been disclosed as yet.

Area and Population.—Through the act of unconditional surrender on May 7, 1945, Germany was reduced to the area it occupied before March 11, 1938. This territory amounted to 181,660 square miles, with a population of 69,622,483. Then, by the terms outlined at the Potsdam Conference, all territory east of the Oder and Neisse rivers, including all of East Prussia and Silesia, most of Pomerania, and a small slice of Brandenburg, was taken from Germany. The northeastern part of East Prussia, with the port of Königsberg,

is to go to the Soviet Union. All the rest of this eastern area carved from Germany is to become Polish. Germany is thus deprived of territory covering roughly 43,280 square miles—23 per cent of the Reich as it existed in 1938—with 9,600,000 prewar inhabitants—13.5 per cent of the 1938 total. The French are advocating internationalization of the Ruhr and permanent severance of the Saar and the Rhineland from Germany. Settlement of their demands is still pending, as are several minor Czechoslovakian, Dutch, and Belgian territorial claims. Their final acceptance or rejection will define the future territorial limits of Germany.

According to present indications, the future Germany will encompass roughly 138,000 square miles with a prewar population of 60 million. The latter figure, however, is not conclusive. Most of the population of the regions annexed by Russia and Poland will be shifted back to what is left of Germany. They are estimated to number about 8 million. Two million Germans are to be expelled from Czechoslovakia. Probably at least 500,000 more, previously settled in European countries overrun by the Germans, have fled back to Germany. German fatalities in the war, never officially disclosed, may run as high as 5 million, about 15 per cent of which were suffered by the population of countries annexed since 1938. A normal increase of population should have raised the total by about 2 million. On balance, these factors would bring the estimated population figure to almost 68 million within the area of 138,000 square miles.

Established Principles for the Administration of Germany.—The administration of Germany is outlined in the communiqué issued by the "Big Three" after the end of the Potsdam Conference on August 2, 1945. According to this declaration, an agreement was reached by the United States, Britain, and Russia concerning the occupation of Germany for the purpose of extirpating German militarism and nazism and of making sure that Germany will never again threaten her neighbors or the peace of the world.

The principles of the Potsdam declaration may be outlined as follows:

The German people shall be given the opportunity to prepare for the eventual reconstruction of their life on a democratic and peaceful basis. Supreme authority in Germany is to be exercised, on instructions of their respective governments, by the commanders in chief of the armed forces of the United States, the United Kingdom, the USSR, and the French Republic, each in his own zone of occupation. They shall act jointly, in matters affecting Germany as a whole, in their capacity as members of the Control Council. So far as is practicable, there shall be uniformity of treatment of the German population throughout Germany. The Control Council shall effect the complete disarmament and demilitarization of Germany and the elimination of all German industry that could be used for military production. It shall convince the German people that they have suffered a total military defeat and that they cannot escape responsibility for what they have brought upon themselves.

The Control Council is supposed to destroy the National Socialist Party and its affiliated organizations and to insure that they are not revived in any form. It will prepare for the eventual reconstruction of German political life on a democratic basis and for Germany's eventual peaceful co-operation in international affairs. All discriminatory laws of the Hitler regime are abolished. War criminals shall be arrested and brought to judgment. Nazi leaders, influential Nazi supporters, high officials of the Nazi Party organizations, and any other persons dangerous to the occupation or its purposes are to be arrested and interned. All members of the Nazi party who have been more than nominal participants in its activities and all other persons hostile to Allied purposes shall be removed from responsible positions and replaced by persons deemed capable of assisting in the development of genuine democratic institutions in Germany.

German education shall be controlled in order to eliminate Nazi and militaristic doctrines and develop democratic ideas. The judicial system is to be reorganized according to the principles of democracy and equal rights for all citizens. The administration of affairs in Germany is to be directed toward the decentralization of the political structure and the development of local responsibility. Local self-government is to be restored on democratic principles as rapidly as consistent with military security and the purposes of the military occupation. All democratic political parties shall be allowed and encouraged to function. Representative and elective principles shall be introduced into regional and provincial administrations, but for the time being no central German government shall be formed. However, certain essential central German administrative departments, headed by state secretaries, shall be established, particularly in the fields of finance, transport, communications, foreign trade, and industry.

The production of arms, ammunition and implements of war, as well as all types of aircraft and sea-going ships, shall be prohibited. Production of items directly necessary to a war economy shall be rigidly controlled and restricted to Germany's approved postwar peacetime needs. Productive capacity not needed for permitted production shall be removed in accordance with the reparations plan, or, if not removed, shall be destroyed. The German economy shall be decentralized and cartels, trusts, syndicates, or other monopolistic arrangements shall be eliminated. Emphasis shall be given to the development of agriculture and peaceful domestic industries.

During the period of occupation, Germany shall be treated as a single economic unit and common policies shall be established in regard to mining and industrial production and allocations; agriculture; forestry and fishing; imports and exports; banking and currency; taxation and customs duties; reparations and removal of industrial war potential; transportation and communications. Allied controls shall be imposed upon the German economy, but only to the extent necessary to carry out the program of disarmament and demilitarization; to collect reparations and govern exports and imports; to assure production and maintenance of goods and services required for the occupying forces and displaced persons; to maintain in Germany a living standard not exceeding the average of the standards of living in European countries; to insure equitable distribution of commodities between the zones of occupation; and to prevent Germany from developing a new war potential. German public and private scientific bodies and research institutions are to be closely supervised.

Administrative machinery shall be created and German authorities required to assume responsibility for its proper functioning. German controls or activities which may run counter to the objectives of the occupation are prohibited. Measures shall be taken promptly to effect the essential

repair of transport, to enlarge coal production, to increase agricultural output, and to effect emergency repairs of housing and essential utilities.

Reparations shall be taken from Germany, but their payment shall leave enough resources to enable the German people to subsist without external assistance. Reparation claims of the USSR shall be met by removals from the Soviet-occupied zone of Germany and appropriate German assets abroad. The USSR undertakes to settle the reparation claims of Poland from its own share of reparations. Reparation claims of all other countries shall be met from the western zones of occupation and from appropriate German assets abroad. In addition to the above-mentioned reparations, the Soviet Union shall receive from the western zones 15 per cent of the industrial capital equipment from the mechanical, metallurgical, and chemical industries which is unnecessary for the German peace economy in exchange for an equivalent value of food, coal, potash, zinc, timber, clay products, petroleum products, etc., plus 10 per cent of such equipment without payment or exchange in kind. The German Navy and merchant marine shall be disposed of by arrangements to be made later.

The Present Situation of Germany.—The question of German ability to maintain a standard of living above starvation level under the conditions created by military surrender and subsequent territorial and economic restrictions cannot yet be answered definitely. It will depend to a large extent upon whether the Germans are willing to accept facts and reorganize their life accordingly.

Although the Germans frequently claimed that lack of space choked their economic and physical development, prewar Germany ranked only fourth among European countries in density of population, with 135 persons per square kilometer (1 sq. km. = 0.3861 sq. miles). Countries with denser populations per square kilometer were Belgium (274), Great Britain (271), and Italy (140). After the loss of its eastern provinces, Germany will be third in density of population. The increase of population in Germany since 1910 has averaged 0.59 per cent a year. (England averaged 0.51, Belgium 0.39, Switzerland 0.40, Sweden 0.53, Italy 0.64, and France only 0.04 per cent.)

After the end of the First World War, the German birthrate declined. Research work carried out by the Friedrich List Gesellschaft in 1927 led to the conclusion that the population of Germany was "overaged," that it would continue to increase until 1945, when it would reach 106 per cent of the 1927 figure, and then decline to less than 50 million by the end of the present century. The Nazi program of encouraging births temporarily reversed the trend. Without such official encouragement and under lowered economic standards, the predictions of the Friedrich List Gesellschaft might well be fulfilled and the density of Germany's population decrease below the prewar level. In that case, the problem of how the German people are to live on their own production would gradually tend to solve itself.

Economic Effect of the Loss of German Territories in the East.—German official statistics for 1938 (latest prior to the Second World War) listed total deposits of coal and iron by districts as follows (figures given in millions of metric tons): Pit coal: Ruhr—55,100; Saar—9,205; Krefeld—7,100; Western Upper Silesia—4,000; Brüggen-Erkelenz—1,700; Aachen—1,570; Lower Silesia—1,240; Hanover—250; Saxony—230. Soft coal: Lower Rhine—17,774; Lausitz—16,374; Thuringia-Saxony—9,565; Eastern Germany—8,414; Brunswick-Magdeburg — 1,850; Silesia — 1,299; Lower Hesse—277; Bavaria—229; Rhine-Main—91; Westerwald—48; various deposits—837. Iron ore: Siegerwald—98; Lahn-Dill—68.4; Westerwald—3; other Rhine districts—25; Thuringia—80; Harz—18; Silesia—2.

Thus, the loss of the eastern territories will reduce Germany's resources of pit coal by 7 per cent, of soft coal by 56 per cent, of iron ore by less than 1 per cent. Potash is found exclusively outside of that lost territory and so is oil.

Industrial output—not listed regionally by German official publications—can be estimated from the total payrolls of industrial establishments as disclosed by taxation reports. The total of industrial and mining wages paid in Germany in 1937 was listed at 12,127,300,000 marks. The equivalent figure for the lost eastern provinces was 830,000,000 marks—less than 7 per cent. The lost areas therefore had an industrial and mining production per capita below 50 per cent of the average for the Reich. The agricultural area of Germany covered 26,705,000 hectares (1 ha. = 2.471 acres) in 1937, of which 7,055,000 are now lost. Cultivated forests totaled 12,488,738 hectares, of which 2,257,182 are in ceded territory. The loss of farmland amounts roughly to 26 per cent, of forests to 18 per cent. The fertility of the lost agrarian regions does not differ greatly from the average in prewar Germany. The 1937 wheat harvest in East Prussia was 16.3 quintals per hectare (1 quintal = 220.4622 pounds avoirdupois); in Pomerania it was 19.3; in Silesia, 17.4. The average for the whole Reich was 22.6. Equivalent figures for rye, barley, and potatoes were as follows:

	Rye	Barley	Potatoes
East Prussia	15.8	21.2	196
Pomerania	15.6	20.6	190.4
Silesia	17.4	21.3	201.8
All Germany	16.6	21.2	191.5

The local administrations of the lost provinces had an average annual deficit of 500,000,000. marks.

The possible loss of the Rhineland, Ruhr, and Saar would have far more serious effects upon the German economy. Industrial production in the Rhineland and Westphalia was about four times that of all territories annexed by Poland and the Soviet Union.

Manpower.—Even if the Russians keep their German prisoners of war in the Soviet Union for a long time to do reparation labor, there will still be plenty of manpower in Germany for production, reconversion, and reconstruction. Before the war, 49.4 per cent of the German population was employed (65.5 per cent of all men, 34.3 per cent of all women). The loss of workers after the cession of eastern territories and population switches will therefore amount to about 1 million. In 1933, German unemployment reached its peak of 6,013,602. From 1933 until the outbreak of the war, an average of 4 million were either active in armament production or in the armed forces of the Reich or the Nazi party. Under normal conditions, that number would have been jobless, despite the fact that German industrial production increased by 48.7 per cent from 1926 to 1937, compared to a world average (excluding Russia) of 22.8 per cent. With war production and every form of military service eliminated, there will be a permanent surplus of German manpower.

Industrial Production.—Despite enormous production for the Wehrmacht, prewar German

industry not only kept the Reich's civilian population adequately supplied, but also succeeded in creating a surplus in the foreign trade balance in spite of substantial food imports. From 1929 until the outbreak of the Second World War, the trade balance only once showed an excess of imports over exports. In 1937, exports were valued at 5,911,000,000 marks; imports at 5,468,000,000. Workers previously engaged in military service, military construction, and the armanent industry are now available for peacetime production, which means that industrial output will increase sharply as soon as production facilities are available.

Investigations made by the Kilgore Committee of the United States Senate estimated Germany's present industrial capacity at 25,000,000 long tons of iron and steel, 437,000,000 l.t. of coal, 2,228,000 l.t. of coal products, 450,000 l.t. of synthetic textiles, 100,000 l.t. of synthetic rubber, 5,600,000 l.t. of natural and synthetic petroleum products, and 250,000 l.t. of aluminum. Figures for dyes and chemicals are not available but probably run high.

Plants and Equipment.—There is no conclusive information at hand regarding the present condition of German industrial plants, but it can be presumed that in the Russian zone of occupation, and even in the parts of Berlin now under non-Russian rule, almost all factories have been dismantled and their equipment shipped to the Soviet Union. There are no reports at the time of writing of large-scale dismantling in the western zones, except for a few exclusively military installations. Thirty plants were reported by early December to have been evaluated for reparations in the U.S. zone of occupation. As long as the war in the Far East continued, certain German factories in these zones—such as the Zeiss works and the Volkswagen factory—were even put to work for the Allied armies.

Raw Materials. — Germany frequently complained in the past about a lack of raw materials. Its 1937 trade balance showed raw material imports valued at 3,294,600,000 marks against exports of 977,600,000 marks. Semifinished goods, especially textiles, accounted for a large part of the latter figure. The imports, however, were inflated by the needs of the war machine. The raw material situation in Germany will deteriorate as a result of the loss of the eastern provinces, but a converted German industry should be able to cover the deficit by exports of peacetime goods.

Agricultural Production.—Before the outbreak of the Second World War, Germany produced about 93 per cent of its food requirements. Due to the territorial losses in the east, this figure will drop steeply to 70 per cent. If Germany makes up the deficit exclusively through imports, it would have to increase its industrial exports to an extent that would seriously interfere with the foreign trade of other countries. But there are indications that the agricultural output can be raised substantially.

For a long time, the Reich's economic experts correctly concluded that it would be cheaper to buy food from agrarian European countries in exchange for German manufactured products than to increase food production at home. In the 50-year period before 1933, the number of Germans engaged in industry and trade rose by 85 per cent, and those employed in commerce and transportation by 172 per cent, but the number of farm hands decreased by 10 per cent. During the Nazi regime, there was a good deal of talk about greater food production, but the Nazi government needed industrial production for its war machine too badly to encourage the migration to the soil in more than words.

Some 7,856,300 hectares of land, slightly less than what was lost in the east in farmland and forests, are uncultivated in Germany. A great portion of this area is arable; 3,369 large estates cover 9,628,591 hectares, more than 2,793,871 small holdings combined. Agrarian reforms could open a great deal of land to cultivation.

Wages of agricultural workers in prewar Germany differed widely according to the region, whereas industrial wages were about the same everywhere. Where farming had to compete with industry for manpower, farm wages averaged 1,100 marks a year, but farm laborers in purely agrarian districts were paid no more than 240 marks, both exclusive of board. (One U.S. dollar = 2.40 marks at the official rate and 4 marks at an official preference rate.) Stabilization of agricultural wages at the higher level throughout Germany would help to attract workers to farms.

The Germans have been predominantly city dwellers for many decades. Only 32.3 per cent of the population lived in communities with less than 2,000 inhabitants before 1938. Various movements inside the former Reich called for a return to the land. Active encouragement of such agrarian tendencies could help to overcome the serious shortage of food.

Housing.—Repair and reconstruction of destroyed dwellings in Germany is certain to take a long time. In 1937, 168,000 dwellings with 320,000 apartments were constructed in the Reich. At that rate, it would take about 10 years to replace the housing destroyed by bombs and shells. In 1937, however, the government was rationing manpower and nonmilitary construction was deliberately neglected. Since almost all essential materials are available, construction can now be accelerated.

Transportation. — Transportation is the most critical problem in Germany at present. The German merchant marine, totaling 4,243,835 tons before the war, is lost. Aerial traffic, carrying 323,101 passengers and covering 1,483,576 long ton-miles in 1937, will not be resumed in the near future. The German railroads, almost completely state-owned, had a total length of 41,300 miles in 1937, of which 13,280 miles are lost to Poland and the USSR. The rolling stock of the "Reichsbahn" is now reduced to a tiny fraction of its 1937 equipment of 20,711 locomotives, 1,762 self-propelled cars, 64,489 passenger cars, and 574,999 freight cars. The capacity of the German railways, which carried 298,991,280 long ton-miles of goods in 1937, is estimated today at about 15 per cent of its prewar level. The Russians confiscated almost all of the remaining rolling stock in their occupation zone and shipped it to the Soviet Union. The western Allies had the rolling stock put into operation in their zone, where it was most urgently needed, but it was extremely deficient in both quality and quantity.

German highways, the best on the European continent, do not solve the current transportation problem. Although they have not suffered much damage, scarcity of fuel and tires keeps the remaining automobiles off the road. In 1938, Germany had 1,271,983 passenger vehicles, 1,513,328 motorcycles, and 365,731 trucks. It also had almost 2,000 miles of superhighways, 25,618 miles of paved highways, and 105,392 miles of country roads. About 17¼ per cent of the roads were lost to Poland and Russia.

German inland waterways now account for much of the freight traffic inside the western part

of Germany. Shipping capacity available within the American zone of occupation is estimated at 300,000 tons. Total figures for all the western zones have not been disclosed. The restoration of German transportation is one of the primary conditions for a return to economic normalcy within the Reich. It was suggested by the Economic Division of the United States control group in Germany to put all repair of rolling stock on a 24-hour basis until more than 40,000 temporarily unusable railroad cars were restored. A total of 5,590 was salvaged in September and 4,400 in October.

Finance and Reparations.—The financial status of Germany, somewhat obscure since 1933, when rearmament was financed by most intricate operations, is chaotic after defeat. Last reports before the march of aggression began in 1938 listed German public debts covered by bonds and bills at 24,384,800,000 marks and private loans secured by bonds and bills at 10,966,600,000. These figures included 2,338,000,000 marks of public debt and 770,100,000 marks of private debt owed to foreign investors. This was an increase of 80 per cent within four years, but the real debt figure should have been even higher. Chancellor Adolf Hitler on April 28, 1939, told of German armament expenditures totaling 90 billion marks between 1933 and 1939. Germany's war expenditures were conservatively estimated at about 100 billion marks a year, only 35 per cent of which were covered by taxation.

The foreign debt now consists mostly of reparations. Although the figure is not yet final, the reparations bill can be estimated at 20 billion dollars, to be paid for in kind or by confiscation of German assets. This amount would be little more than half of what Germany plundered from the countries overrun by the Wehrmacht. The London Ministry of Economic Warfare, on Oct. 10, 1944, estimated that figure at $26,400,000,000, not including Austria or the transfer of industrial equipment from occupied countries to the Reich. The complete total is privately estimated at $37,000,000,000.

Germany's internal debts are currently estimated at 400 billion marks. They cannot possibly be paid out of normal tax revenues and will probably be canceled out by inflation, just as they were after 1918.

The assets of the German state consist mostly of state enterprises, the most important of which are the Reichsbahn (state railroads), with investments aggregating $12,250,000,000, the Reichspost (postal service), and state domains, many of them in the lost provinces. These assets cannot be liquidated. Private property will have to be confiscated to pay reparations. Privately owned German holdings abroad, according to the testimony of Henry Fowler, director of the enemy branch of the Foreign Economic Administration, before the Kilgore Committee are as follows:

Country	Millions of dollars
Argentina	200
Other Latin American countries	250
Liechtenstein	222
Portugal	27
Spain	200
Sweden	76
Switzerland	300
Turkey	30
United Kingdom	70
United States of America	340
Total	1,715

Machine tools still in Germany were estimated by the same witness at 4 million tons, representing a very high value.

The collection of reparations, according to a Russian suggestion, should be completed within a period of two to three years, with Russia getting the lion's share for herself and Poland. These two countries suffered by far the heaviest damage from the German invasion.

Allied Administration of Germany in Practice.—At the Potsdam Conference it was decided that Berlin, with a prewar population of roughly 4,500,000, should be jointly administered by all four occupational powers. The rest of the Reich was divided into four zones. The smallest of these, about 6,500 square miles with a prewar population of 3,500,000, went to the French. It includes the Saar, the Palatinate, and part of Baden. The rest of Germany, excluding the districts ceded to Russia and Poland, was divided into three roughly equal parts for occupation by the United States, Britain, and Russia. The American zone, in southwestern Germany, includes Bavaria east of the Rhine, Württemberg, Hesse, and part of Baden. The British zone, in northwestern Germany, includes Hannover, Westphalia, Schleswig, the Rhine Province, Lippe, and the former free cities of Hamburg, Bremen, and Lübeck. The Russian zone, in eastern Germany, is somewhat larger and includes Brandenburg, Saxony, Mecklenburg, Thuringia, and Dessau. In peacetime, the population density was greatest in the British zone and smallest in the American, although displacements during the war have altered this situation. The American zone was crowded with refugees from other parts of Germany shortly before the surrender, many of whom have remained. After General of the Army Dwight D. Eisenhower took over his assignment in the United States as Army Chief of Staff, Gen. Joseph T. McNarney was appointed commander of U.S. forces in Europe, of U.S. forces occupying Germany, and U.S. representative on the Allied Control Counsel for Germany, with Lieut. Gen. Lucius C. Clay as deputy military governor. The British commander is Field Marshal Sir Bernard L. Montgomery; the Russian commander, Marshal Grigory Zhukov; the French commander, Maj. Gen. Pierre Koenig.

Traffic between the zones of occupation was not immediately resumed on any large scale, which delayed arrangements for an exchange of goods between zones. Uniformity of treatment of the German population has not been achieved, nor has noticeable progress been made toward unity of the German economy. The Allied Control Council, as established in Potsdam, meets only infrequently and its activity has been chiefly confined to the drafting of plans to be carried out in the indefinite future. The French government was occasionally blamed for opposing unifying measures. It is obvious that France wants its claims in Western Germany to be settled as those of Russia and Poland were in the eastern Reich, before cooperating, and that the French, having suffered three German invasions within 70 years, are worried by the outlook of another unification of Germany.

On September 20, the council in Berlin agreed on the principal features of a German export-import policy, integrating all occupational zones. Imports and exports are to be planned and controlled, even as to prices, by the council or its agents. Export receipts will be kept in a fund to be used to pay for imports. Payments for both imports and exports are supposed to be made in United States dollars or any other foreign currency acceptable to the Allied Control Council.

Imports are to be limited to what is considered indispensable for the German economy.

Controls over the German economy are to be imposed to insure the equitable distribution of essential commodities among the zones and reduce the need for imports. With the almost complete removal of industrial equipment from the Russian zone, the problem of supplying Germany with essential commodities, as far as it can be carried out by domestic production, will thus rest on the plants in the American, British, and French zones of occupation. On December 4, General Clay assured German representatives that food would be sent from the United States to support the diet of 1,550 calories a day, as of Jan. 1, 1946, the expense of such supplies to be met when Germany is able to pay.

Huge quantities of war equipment have been seized in all zones, but final figures are not available. The Nazi party was dissolved and outlawed and its decrees were voided. However, some former Nazis are still attempting to hold public office.

The expected removal of persons with obvious Nazi affiliations from responsible positions in the German economy was not fully carried out. American occupational authorities in some cases blocked economic de-nazification with the argument that the ousting of all compromised men would reduce the efficiency of various establishments to a degree detrimental to the supply of their zone.

Local burgomasters were named almost everywhere in Germany by occupation authorities. Trying to make great strides toward regional self-government, American authorities encouraged the formation of a provincial government of Bavaria (an area of roughly 27,000 square miles with 7,000,000 inhabitants). The results were decidedly discouraging. Prime Minister Fritz Schaeffer, appointed to his office on June 7, 1945, named Dr. Gessler as his confidential adviser. Gessler was German war minister during the period of secret rearmament (1920–28). Ernst Fischer, minister of finance, turned out to be a former deputy leader of the Bavarian Nazi party. Dr. Otto Schwinck, minister of transportation, once worked for the Nazi Labor Front, and August Fischer, minister of the interior, acted as a Nazi commissioner of German universities in 1940–41. These men were removed from office on Sept. 11, 1945, and Schaeffer, too, was compelled to resign. Previously, Police Col. Hans von Seisser had held the office of chief of the Bavarian police under American auspices for three months before it was remembered that he had worked closely with Hitler at the time of the latter's beer hall putsch in November, 1923. In an effort to find Germans fit to administer their local affairs, questionnaires are issued in the United States zone of occupation to applicants for public office. Up to September 11, 156,011 of these questionnaires were completed. Of the total, 42,744 applicants proved nonemployable, 9,029 were to be removed within 30 days, and 18,629 were referred to the military government's discretion with no adverse recommendations.

On September 12, Marshal Zhukov announced that the Russian occupation authorities, in a far-reaching interpretation of the term "local governments," had set up a sort of zone-government. Eleven government departments were established, each of them headed by a German under the immediate control of a corresponding department of Marshal Zhukov's own staff. The announcement listed the departments and their directors as follows: Agriculture—Edwin Hoernle (Communist); Education—Paul Wandel (Communist); Industry—Leo Skrzyposinski (Communist); Transportation—Dr. Wilhelm Pfitzner (Social Democrat); Communications—Wilhelm Schroeder; Coal and Fuel—Dr. Ferdinand Friedensburg (Christian Democrat); Trade—Dr. Buschmann (Social Democrat); Finance—Heinrich Meier; Labor—Gustav Gundelach; Justice—Eugen Schiefer (Liberal Democrat); and Health—Paul Konitzer. The directors whose party affiliations are not given are supposed to have Communist ties. The former Seydlitz Committee is not represented in the new administration, and it looks as if the Soviet government decided to drop the Seydlitz group after they failed to stir up revolts in Germany during the war. The Russians probably expect their newly appointed department directors to become candidates for a future central government of Germany when the country's sovereignty is eventually restored.

No attempt was made in the British and French zones of occupation to set up local governments beyond municipal administrations and few reports have been received to date about British and French experiences with the local officials installed by occupational authorities. The western Allies still plan elections to name the future local governments within their zones, but Russian designations were made without a public vote. Central German administrative departments have not yet been established.

Prosecution of War Criminals.—Despite the sensational Nüremberg trials, progress of the prosecution is disappointingly slow and the number of arrests during the first months after the German surrender lagged far behind expectations. However, a number of prominent criminals (members of the German government, Nazi party leaders, and some of the most compromised generals and admirals) were seized for trial. It seems probable that most of the millions of petty looters and torturers will escape punishment. (See WAR CRIMES TRIALS.)

The Americans and British released many German prisoners of war to restore transportation, agriculture, and coal production within their zones. Reports from the Russian zone are meager, but there are indications that a large number of German prisoners were put to work in Russia and Poland. The French used German prisoners in the devastated regions of France. The Germans have shown marked reluctance to undertake their own rehabilitation. Leading industrialists as well as local public functionaries clamored for Allied support and relief, expecting such help mostly from the United States.

Politics, Education, and Press.—Political activity in Germany, based on democratic principles was encouraged by the Potsdam Declaration. It is furthest developed in the Russian zone. Four political parties (Communists, Social Democrats, Christian Democrats, and Liberal Democrats) are busy there. As Russian ideas of democracy differ from those in the United States, not all of these parties would be considered democratic by American standards. Labor unions have been revived in Berlin. Eighteen of them were united into the *Freier Deutscher Gewerkschaftsbund* (Free German Trade-Union-Federation). This organization is headed by a council of eight, four of whom are Communists. The Communists were by no means as strong proportionately in pre-Hitler German trade unionism, which was dominated by the Social Democrats. The membership of the unions is only about 200,000.

In the western zones of occupation, the Communists are less prominent. The former Catholic

Center party, the Social Democrats, and some small liberal groups have resumed their activity without eliciting much public response. Exiled German politicians have not yet been able to return to Germany and it is increasingly evident that their influence can be discounted.

German education, to be recast along nonmilitaristic and democratic lines, was resumed by the opening of many schools and a few universities.

The German press, controlled by the Allies in all zones, is still functioning on a very limited scale. Although more than 50 per cent of the total of newspaper copies printed in 1933 (10 million copies compared to 19 million) are in circulation, they are considered temporary substitutes. The German newspaper reader is still waiting for his prewar type of paper.

Events in 1945.—At the beginning of the year, the soil of the Reich was uninvaded except for tiny slices of territory in both east and west. German troops still held most of Holland, a slice of Belgium, Poland west of the Vistula River, the Baltic States, parts of Hungary and Yugoslavia, all of Austria, most of Czechoslovakia, and a sizable part of Italy.

Although the Wehrmacht was already losing the "battle of the bulge" in the west, the German public was not fully aware of the seriousness of the Reich's situation. Reports of the havoc wrought by V-1 and V-2 attacks and rumors about invincible "new weapons" gave the average German some confidence in ultimate victory, or at least in a negotiated peace which would leave the Reich intact and perhaps include some territorial gains. German propaganda, emphasizing differences between the western Allies and the Soviet Union, also promoted the illusion that Germany, in the last stages of the war, might even be able to choose between supporting the western Allies or Russia in the war against each other which Dr. Paul Joseph Goebbels predicted. The relentless bombing of German cities infuriated the Germans but did not discourage them. There was no popular opposition to the Nazi regime. The Potsdam Declaration correctly says of the German people's attitude toward their government: "Whom, in the hour of their success, they openly approved and blindly obeyed."

Alll of the many stories disseminated in Allied countries about the heroic resistance of a German underground proved unfounded. There was a little opposition to the Nazi regime from German conservatives with no popular following. After supporting the Hitler government to the limit as long as it was successful, these men understood that, despite all propaganda claims, the war was lost. By ridding themselves of Hitler, they hoped for a negotiated peace which would bring them to power. They were ruthlessly persecuted and wiped out by the Gestapo. The Nazi party tried to make the Allies believe that there was no choice between their rule or complete chaos in Germany.

Adolf Hitler was personally inconspicuous. The Führer was probably unable to understand the truth. For years he had tried to convince the world of his infallibility and had finally convinced himself of it. Identifying himself with the Reich, he actually expected some miracle to produce a German victory. He also relied upon new weapons. (See WORLD WAR, SECOND, 1945.)

Heinrich Himmler, chief of the SS and the Gestapo, became the leading spirit of the Nazi party and the German government. Himmler's policy aimed at gaining time, suppressing opposition, and trying to foment discord among the Allies. Dr. Goebbels spread rumors through neutral channels that the western Allies were considering a separate peace with Germany and even an alliance against the USSR. Another Goebbels story told of Russia's arming 200,000 German prisoners to fight the Allies. The strategy of the German General Staff became defeatist after the "battle of the bulge" was lost. Numerous discharges and even the arrest and execution of German generals made no difference. The Wehrmacht fought a losing campaign, half-hearted in the west, frantic but hopeless in the east.

After the American seizure of the Rhine bridge at Remagen and the Russian penetration to within less than 40 miles of Berlin (See WORLD WAR, SECOND—1945), the German people became aware of impending defeat. The advancing Allies found the most shocking proof of German atrocities in such concentration camps as Buchenwald, Gardelegen, Dachau, Oswiecim, Belsen, and others. Millions of people were put to death by unimaginable cruelty or by slow starvation and lack of medical care. There was irrefutable evidence of the mistreatment and even murder of Allied prisoners of war. The German people's reaction to the harrowing evidence showed little shame or remorse. Conditions inside Germany were made worse by the flood of displaced persons—prisoners of war and forced laborers—who tried to get home and had to be taken care of. Although such persons frequently resorted to violence to obtain food, shelter, and transportation, (and also for revenge), the number of killed or severely injured Germans was extremely small.

In April 1945, Heinrich Himmler attempted to arrange a negotiated peace with the western Allies, leaving the Wehrmacht free to fight the Russians and allowing the Nazi Party to stay in power. Count Folke Bernadotte, president of the Swedish Red Cross, acted as Himmler's go-between. The western Allies, informing Russia of the German proposals, flatly refused to negotiate.

After the breakdown of these attempts, with the war in the west practically over and the Wehrmacht about to collapse in the east (See WORLD WAR, SECOND—1945), Grand Admiral Karl Doenitz broadcast from his headquarters at Flensburg, close to the Danish border, on May 1. He announced that Adolf Hitler had died heroically in the burning Reich's Chancellery in Berlin and that he had formed a new government whose first duty was "to save Germany from destruction by the advancing Bolsheviks." He added that "as far and as long as the achievement of this aim is impeded by the British and Americans, we shall be forced to carry out our defensive fight against them all."

Doubts about the authenticity of Hitler's death have been widely expressed ever since. No conclusive evidence either way had been found at the time of writing, despite a lengthy British account of the Führer's alleged end, but it seems probable that the Führer is no longer living.

The Doenitz Cabinet was composed of thoroughly compromised personalities. Doenitz himself was the strongest advocate of the ruthless type of submarine warfare carried out by the German Navy. Herr Franz von Seldte was the leader of the notorious para-military *Stahlhelm*. Count Lutz von Schwerin-Krosigk was the finance minister in Hitler's first Cabinet in 1933. The Allies did not recognize the Doenitz government. The final surrender of the German armed forces on May 7, 1945, was signed on behalf of the three branches of the Wehrmacht: Heer (army),

GERMANY



The Reichstag in Berlin the day it was captured by Red Army units.

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Signal Corps Photo

Infantry men of the United States Third Army move through the war-torn city of Prum, of which little is left but blasted buildings and debris-littered streets.

Marine (navy), and Luftwaffe (airforce) (for details, see WORLD WAR, SECOND—1945), and not by the German government.

To the bewilderment of Allied observers, Grand Admiral Doenitz, even after the unconditional surrender, continued to act as if he were the legally appointed head of a German government. For a time, he used a radio station at Flensburg to make unauthorized broadcasts. "I can imagine nothing which has done more harm to our cause than allowing Doenitz to have access to the radio and to broadcast to the German people the beginning of a build-up that the German Army was not defeated and that the noble German nation will rise again," stated Col. Walter E. Elliot, British Conservative M.P. German soldiers, riding on trucks through Germany, were wildly acclaimed by their compatriots and showered with flowers. The dissolution of the Doenitz government and the arrest of its members by the Allies finally put an end to new German nationalist propaganda. The fundamental attitude of the German people, however, is well illustrated by the fact that the song *"Berlin wird wieder erstehen!"* (Berlin will rise again!") became the favorite of Berliners.

British raids in their occupation zone led to the arrest of about 80,000 persons for illegal possession of arms. German sabotage rings, designed to wreck the Allied occupation, were discovered before they could do serious harm. The "Werewolf" organization, which the Nazis boasted would harass the occupation forces and kill German collaborators with the Allies, gave little evidence of its existence.

The future fate of Germany and its role in the world will depend largely upon the degree to which the Allies effectively implement the Potsdam Declaration. The menace of German aggression, terrifyingly pictured in the evidence gathered by Allied investigators in Germany and partly produced at the Nuremberg trials, will never be dissipated unless and until the demilitarization of Germany, in spirit as well as in physical fact, is complete.

Note: Statistical figures are mostly given for the year 1937 because later material applies to a Greater German Reich which no longer exists. (For information on the German Navy, see NAVAL PROGRESS.)

ERWIN CH. LESSNER,
Major, Austrian Army; Author, Phantom Victory; Blitzkrieg and Bluff.

GEROW, Leonard Townsend, United States Army officer: b. Petersburg, Va., July 13, 1888. Lieutenant General Gerow commanded the United States Fifteenth Army, part of Gen. Omar N. Bradley's Twelfth Army Group, for the Allied war against Germany in Western Europe. On April 28, announcement was made from Paris that the Fifteenth would occupy the American zone in Germany; and on May 19, this zone was defined. On July 21, the Fifteenth's occupation task completed, General Gerow revealed his appointment to head a board of United States officers to make a detailed study of the war.

GI BILL OF RIGHTS. Hardships and disabilities, the natural concomitants of war, fall most directly on the armed forces of the nations involved. Such, at least, is the case for the American soldiers, sailors, and airmen. Public Law 346, the Servicemens' Readjustment Act of 1944, better known as the GI Bill of Rights, is the concrete expression of Congress' plan to balance the scales for all returned veterans who may wish to avail themselves of that measure's benefits. It is not to be confused with other acts which provide specifically for physically disabled veterans and the dependents of veterans who died or were killed in line of duty.

The GI Bill offers educational and economic help of four major kinds: (1) education and job-training; (2) guaranty of loans; (3) unemployment allowances; including aid for self-employed; (4) job-finding assistance. Collectively they represent a sharp departure from the philosophy responsible for enactment of the federal and state bonus bills passed after the First World War, when cash and time payments were deemed to be adequate acknowledgment of the public obligation to the veteran. The present effort may well be called an adjustment or payment in kind. In no sense is it a "handout." On the contrary it encourages the veteran to maintain his independency by requiring him to repay any loans he may receive under the law's provisions, receive passing grades in his educational or training courses, and meet the working standards set for any job he may secure with government aid.

Education and Job Training.—Eligibility for free job training or education, as shown in the table below, is contingent on the veteran's meeting certain requirements: (1) Discharge from the service must have been under conditions other than dishonorable. (2) A veteran who had attained the age of 25 when he entered the service or on Sept. 16, 1940, whichever is later, will be required to prove that his education suffered interference as the result of his military service. (3) Time spent by the veteran in the Army Specialized Training Program (ASTP), if it was a continuation of his civilian medical, dental or veterinary courses, and if such courses were completed, will be deducted from his time allowance. (4) The education must be begun within two years after the veteran's discharge or the official end of the war, whichever is the later. (5) The education cannot extend beyond seven years after the war.

Time in armed forces	Total school time allowed
Applies to all veterans of any age:	
Under 90 days, but disabled	12 months
90 days or more of service	12 months
Applies to veterans who qualify for additional training because they were 25 or under when they entered service, or if over, had their education interrupted:	
6 months	18 months
1 year	24 months
1½ years	30 months
2 years	36 months
2½ years	42 months
3 years, or over	48 months

Up to $500 annually will be paid by the government to institutions or their job-training equivalents for tuition, essential fees, and other necessary expenses of the trainee. In addition the veteran will receive a subsistence allowance of $50 per month if he has no dependents; $75, if he has one or more. These figures are proportionately reduced for veterans taking part-time courses or apprentice training, particularly where wages are being received. Training may be taken at any institution approved by an appropriate state agency or the Veterans Administration. It may be had at any level, from secondary school to college postgraduate.

Guaranty of Loans.—This provision of the law permits the veteran to arrange for a loan from a private lending agency under more favorable conditions than an ordinary civilian. Contrary to general opinion, the government makes no outright loans to veterans. To qualify for the government guaranty, the veteran must meet the following conditions: (1) other than dishonor-

able discharge; (2) at least 90 days' active service since Sept. 16, 1940 (not applicable to veterans discharged because of disability in line of duty); (3) application within two years after discharge or the end of the war, whichever is later; (4) application in all cases not later than five years after the end of hostilities. The government will guarantee 50 per cent of a veteran's loan, to a maximum of $2,000 of a $4,000 loan, provided the money is to be used for the purchase or improvement of a home, farm, or business. For loans of less than $4,000, the 50 per cent guarantee limit is operative; for loans of more than $4,000 the $2,000 maximum sets the limit. More than one loan may be obtained, provided the total of all loans does not exceed $2,000. Where both husband and wife are eligible as veterans, each is eligible for the full benefits. The interest rate must not exceed 4 per cent. Other provisions of the law cover guarantees of loans for a wide range of purposes, among them: repairs and improvements, purchase of supplies, liquidation of indebtedness, payment of property assessments, payment of taxes on real estate or business.

Careful scrutiny of both the borrower and the objective sought in the loan is contemplated by the law. Thus, in the event the veteran wishes to purchase a piece of farmland, the price must be adjudged reasonable and in no case more than $12,000. Also, the experience and demonstrated capacity of the veteran must be rated satisfactory. All loans are payable within 20 years, some of them earlier.

In the purchase of war priority materials and rationed items, the War Production Board will give special consideration to the veteran who plans to establish or re-establish a business, provided that not more than eight will be employed in the business. The Office of Price Administration is similarly charged with the grant of preferences for the veteran. Lastly, certain priorities are available to him in the purchase of surplus war property of various kinds.

Unemployment Allowances.—Conditions (1) and (2) listed under the loan guaranty section likewise apply here. Compensation, not to exceed a total period of 52 weeks, may be made to veterans who are unemployed within two years after discharge or the end of the war, whichever is later. All such benefits will expire five years after the termination of hostilities. A status of complete unemployment (or if partially employed, earning less than $23 per week), residence in the United States, registration with and continued reporting to a public employment office, ability to work and availability of suitable work are requirements for eligibility. The maximum weekly allowance is $20, less any wages earned in part-time work above $3. Any moneys received as compensation under a state unemployment program will be subtracted from the federal allowance. For those who qualify the following table of allowances applies:

Time in armed forces	Period of payment in weeks
90 days (or disabled prior to 90 days)	24 weeks
4 months	28 weeks
5 months	32 weeks
6 months	36 weeks
7 months	40 weeks
8 months	44 weeks
9 months	48 weeks
10 months	52 weeks

Disqualification from allowances will occur if the veteran: (1) leaves work voluntarily without good cause; (2) is suspended or discharged for misconduct in the course of employment; (3) fails to apply for suitable work, without good cause, after referral by public employment office; (4) fails to accept suitable work when offered; (5) fails to attend available free training course, without good cause; (6) is unemployed by reason of work stoppage, the result of a labor dispute at the place of employment. Relief from the last-named disqualification may be secured if the veteran is not a participant in, or has no direct interest in, the dispute. Refusal to accept or to remain on a suitable job may result in disqualification from unemployment benefits for a four-week period. A second disqualification may last eight weeks. The sixth item listed above does not interfere with a veteran's right to participate in a strike but it does declare that he cannot strike on government pay. A final provision of the unemployment allowance clause makes it available to needy self-employed veterans.

Job-Finding Assistance.—For many veterans the first major step in readjustment to civilian status is the return to his prewar job—or a better one. Within reasonable limits that privilege was promised the veteran by the Selective Service Act of 1940. Former government employees have absolute assurance of restoration to their previous jobs or to jobs of like seniority, status, and pay. A similar general commitment has been established for private employers, although it may be voided if the employer can demonstrate that "circumstances have changed so as to make it impossible or unreasonable" to re-employ a veteran.

To qualify for government assistance the veteran must: (1) show a certificate of discharge other than dishonorable; (2) demonstrate his qualifications for the job; (3) return to his former employer within 90 days after demobilization. Discharged veterans seeking employment in new fields are assured aid in their search from a Veterans' Placement Service Board operating through the United States Employment Service. Similar aid is available to veterans who have lost their old jobs. Such official forms of government aid are variously supplemented by community and regional assistance tendered by business organizations, local officials and other official and semiofficial agencies.

Later Legislation.—H. R. 3749, passed by the House July 18 and by the Senate November 8, greatly liberalized the benefits available to veterans under the provisions of the original law pertaining to education and guaranty of loans. Under the amended bill, the government guarantee of 50 per cent of a loan, or a maximum of $2,000, was changed in the case of real estate loans to raise the maximum to $4,000. New provisions opened the educational program to veterans without regard to age, increased the living allowance for single veterans at educational institutions from $50 to $65 a month, and for those with dependents from $75 to $90 a month. It also authorized veterans to take short-period, high-cost courses and correspondence courses at government expense. Benefits of the GI Bill of Rights were extended to Americans who fought in the armies of other Allied governments.

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GIBRALTAR. A British colony occupying a rocky promontory on the south coast of Spain. The maximum elevation of the "Rock" is 1,396 feet, and the colony, two and three-fourths miles in length and three-fourths of a mile wide, has

an area of one and seven-eighths square miles; it commands the Atlantic entrance to the Mediterranean. Prior to the Second World War the civil population, mostly descendants of Spanish and Italian settlers, numbered 20,339 between sunset and sunrise; large numbers of Spanish laborers crossed the isthmus into Gibraltar each day. In 1940, with entry of Italy into the war imminent, 15,000 Gibraltarians were evacuated, going to Northern Ireland, Tangier, Britain, Spain, or Madeira; they were repatriated in 1945. A canal was cut across the isthmus for purposes of defense, and tunnels through the Rock, two miles in length before the war, were lengthened to 10 miles. The governor (Gen. Sir Thomas Ralph Eastwood appointed Feb. 16, 1944), who also commands the garrison, is assisted by an Advisory Council first created in 1945; this body comprises the whole of the city council (6 official members and 6 elected), the colonial secretary and the attorney general. Revenue in 1943 was £505,603, and expenditure £213,316. A mass meeting on Sept. 11, 1945, expressed the desire that Gibraltar become a part of Great Britain, with its own members in the House of Commons. Roman Catholicism is the predominating religion. There are four Roman Catholic churches and one Anglican cathedral. The government gives financial support to the 13 elementary and 4 secondary schools, which had an enrolment of 2,714 pupils before the war. Industries are negligible, the people, for the most part, being engaged in servicing vessels and the considerable transshipment trade. The enclosed naval harbor has an area of 440 acres. During the war a unique airport was built at Gibraltar, the runway, 190 yards wide, extending far out into the bay; water is on both sides of the runway for nearly half of its length of 1,800 yards. A pigeon sent to Gibraltar in 1944 to replenish the lofts of the Royal Air Force established a world record flight when it flew back to its home at Gillingham, Kent, England, a distance of 1,090 miles.

GIDEONS, The. Organized at Janesville, Wis., July 1, 1899, the Gideons, the Christian Commercial Men's Association of America, International, is now the oldest interdenominational laymen's evangelistic association in the world. The purpose of the organization originally was Christian fellowship and evangelistic effort in behalf of traveling men. The founders were John H. Nicholson, of Janesville, Wis., W. J. Knights, of Wild Rose, Wis., and S. E. Hill, of Beloit, Wis. Mr. Hill was chosen first president of the organization, Mr. Knights first vice president, and Mr. Nicholson first secretary and treasurer.

In November 1908 the organization began placing the Holy Bible in every hotel guest room, a work which has made it famous throughout the world. On the date mentioned, Bibles were placed in the Superior Hotel, Iron Mountain (now Superior), Mont. Later the work was extended to include hospitals and penal institutions. The Gideons are now one of the largest purchasers of Bibles in the world. Specially bound Gideon Bibles have been placed in the rooms of practically all large hotels in the United States and in those of many foreign countries, including the leading hotels in Palestine. To 1945 nearly 2,500,000 Bibles had been placed by the organization. In 1937 the association began placing a Bible at each teacher's desk in the public schools throughout the country. In 1941, during preparations for national defense, the Gideons were permitted through United States Army and Navy chaplains to supply the men in the armed forces with service Testaments. These Testaments contain the Psalms, and carry a foreword by the late President Franklin D. Roosevelt. To August 1, 1945, approximately 9,000,000 Testaments had been placed.

The Bible work of the Gideons is supported through freewill offerings of Christian people. The emblem of the organization is a two-handled pitcher and a torch, commemorating the Biblical account of Gideon's victory over the Midianites (Judges 7). Membership is open to any Christian man who is a church member, and is of two classes: regular, or voting membership, confined to business men; and associate membership, open to men of other occupations. Local organizations, or camps, are distributed over the United States and Canada. The association is managed by an international cabinet consisting of a president, vice president, treasurer, chaplain, and six trustees, all chosen by an annual representative convention. There is an affiliated ladies' organization, known as the Auxiliary, and consisting of the wives, daughters and sisters of Gideons.

Officers in 1945 included Ren Muller, Holland, Mich., president; Paul A. Westburg, Chicago, Ill., vice president; Samuel A. Fulton, Milwaukee, Wis., treasurer; Harry A. West, Portland, Oreg., chaplain; and N. F. Dewar, Chicago, secretary. Headquarters: 202 South State Street, Chicago 4, Ill.

N. F. DEWAR,
Secretary, The Gideons.

GILBERT ISLANDS. See WESTERN PACIFIC ISLANDS, BRITISH.

GILDERSLEEVE, Virginia Crocheron, American educator: b. New York, N.Y., Oct. 3, 1877. The daughter of an eminent lawyer, native of Dutchess County, who became a justice of New York's Supreme Court, Miss Gildersleeve attended New York City schools and Barnard College from which she received the bachelor's degree in 1899. In due course she obtained the master's degree and that of doctor of philosophy from Columbia University. Some years later Columbia also bestowed the degree of doctor of literature (1929). Joining the Barnard faculty in 1900 as an instructor in the English department, Miss Gildersleeve was advanced to assistant professor in 1910, becoming full professor and dean of the college in 1911. An excellent public speaker, tall and of commanding presence, Dean Gildersleeve soon achieved a distinguished reputation in academic circles for her wisdom and fearlessness. She never failed to express vigorous dissent when she disagreed with popular opinions. For instance, she frequently criticized coeducational institutions, declaring that they tended to establish a "male superiority" complex. A trustee of several girls' schools in the United States, and of the American College for Girls at Istanbul, Turkey, her advice in educational problems was sought by many institutions. She is the recipient of numerous honorary degrees from American colleges and universities, and of decorations from foreign governments, including France and the Dominican Republic. She was twice elected president of the International Federation of University Women (1924–26 and 1936–38). Though the dean's favorite hobby is archaeology and she is deeply versed in the Latin and early English literatures, she is far from being an ivory tower scholar. She has always taken an active interest in both national and international affairs. At the

outbreak of the Second World War she urged American aid to the Allies and vigorously opposed the isolationist group. Until the United States entered the war she forthrightly expressed her fear that American youth had grown "soft." In the spring of 1945 she was appointed one of the American delegates to the United Nations Conference at San Francisco.

GILES, Barney McKinney, United States Army Air Force officer: b. Mineola, Texas, Sept. 13, 1892. In April 1945, Lieutenant General Giles was named commanding general of all army air forces in the Pacific Ocean areas, replacing the late Lieut. Gen. Millard F. Harmon. He had previously served as chief of air staff and General Arnold's principal aide in directing global operations of the AAF. On Oct. 14, 1945, he was appointed commander of United States Strategic Air Forces in the Pacific, succeeding Gen. Carl Spaatz. He is the twin brother of Maj. Gen. Benjamin F. Giles (q.v.).

GILES, Benjamin F., United States Army officer: b. Mineola, Texas, Sept. 13, 1892. Major General Giles was named commanding general of United States Army forces in the Middle East in February 1944. The 53-year-old Texan is a veteran of the First World War, in which he served with an American air squadron in France. In August 1942, General Giles was named commander of the North Atlantic Wing, AAF Air Transport Command. In October 1943 he was shifted to the Ninth Air Force Troop Carrier Command, and in February of the next year, received his Middle East assignment. General Giles is the twin brother of Lieut Gen. Barney McKinney Giles (q.v.).

GILMORE, Charles Whitney, American paleontologist: b. Pavilion, N.Y., Mar. 11, 1874; d. Washington, D.C., Sept. 27, 1945. Curator of the department of vertebrate paleontology at the United States National Museum after 1923, Dr. Gilmore was an international authority on reptiles and fossils. In 1923 he headed a party which discovered in Utah the bones of a *Diplodocus,* a dinosaur that was one of the earth's largest creatures and lived more than 170,000,000 years ago. In 1926 he directed a collecting trip in the Grand Canyon which found a ton and a half of slabs of sandstone and shale containing animal footprints believed to have been many millions of years old. Between 1932 and 1937 Dr. Gilmore discovered the skull of a 60,000,000 year old bird of the hawk family; the almost complete skeleton of a *Coryphodon,* an early mammal; and the bones of a *Sauropod,* a species of dinosaur which lived from 80,000,000 to 150,000,000 years ago.

GIN. See DISTILLED SPIRITS.

GIRL SCOUTS. A nonsectarian, nonpolitical organization for girls, founded by Juliette Low in Savannah, Ga., in 1912 under the name of Girl Guides. It became a national organization in 1913, the name being changed to Girl Scouts. It is affiliated with the World Association of Girl Guides and Girl Scouts. The types of membership include the Brownie Scouts (ages 7 to 10); Girl Scouts (10 to senior high school age); and Senior Scouts (senior high school age). As of June 30, 1945, the total membership was 1,144,260. Membership fees supply the basic income, although contributions and the sale of equipment provide an additional source of revenue. During 1944–45, emphasis was placed on world friendship and Girl Scout donations to the Juliette Low World Friendship Fund provided support for an orphanage in China and aid to British, Russian, Greek, French, and Italian children. Scouts throughout the country rendered aid to the Treasury Department during the Sixth and Seventh War Loan drives by conducting a nationwide clipping service for that agency. The recruiting drive for army nurses was aided by Girl Scouts, as were hospitals, whose need for volunteers was emphasized during Girl Scout Service to Hospitals Week in October 1944. By April 1945, Girl Scouts had contributed over 23,000,000 hours of volunteer service to the nation since Pearl Harbor. The organization publishes *The American Girl,* a magazine for all girls; *The Girl Scout Leader,* a magazine for adult leaders; and *It's Their World,* an annual pictorial review.

Officers of the Girl Scouts are: president, Mrs. Alan H. Means; national director, Mrs. Paul Rittenhouse; chairman of the executive committee, Mrs. Ralph G. Wright. National headquarters: 155 East 44th Street, New York 17.

GLASGOW, Ellen Anderson Gholson, American novelist: b. Richmond, Va., April 22, 1874; d. there, Nov. 21, 1945. Winner of the Pulitzer Prize in 1941 for her novel, *In This Our Life,* Miss Glasgow was among the leaders of the literary renaissance in the South and one of America's most distinguished women writers.

Born of an aristocratic Southern family, Miss Glasgow had only a little training in private schools, and for the most part educated herself by reading in her father's extensive library. She wrote her first novel, *Sharp Realities,* at the age of 18, but later destroyed the manuscript. Her first published book, *The Descendant,* was printed in 1897 without her name on the title page. Her next novel, *Phases of an Inferior Planet,* appeared, also anonymously, in 1898, followed in 1900 by the first novel to be published under her name, *The Voice of the People.* A realist and feminist, Miss Glasgow was chiefly concerned with recording the social history and political background of her native state from 1850 to the present. Her novels represented a revolt against the romantic and sentimental genteel tradition of Southern fiction. In 1925 she published *Barren Ground,* which was hailed by the majority of critics as her finest achievement. It won immediate popular acclaim, although it caused a storm of literary protest from the more conservative elements of the South. In 1940 Miss Glasgow received the Howells Medal for fiction from the American Academy of Arts and Letters, and the annual *Saturday Review of Literature* plaque for distinguished service to American literature. The next year she was awarded the Southern Authors Prize. Other works by Miss Glasgow include: poetry, *The Freeman and Other Poems* (1902); fiction, *The Battle-ground* (1902); *The Deliverance* (1904); *The Wheel of Life* (1906); *Ancient Law* (1908); *The Romance of a Plain Man* (1909); *The Miller of Old Church* (1911); *Virginia* (1913); *Life and Gabriella* (1916); *The Builders* (1919); *One Man in His Time* (1922); *The Shadowy Third and Other Stories* (1923); *The Romantic Comedians* (1926); *They Stooped to Folly* (1929); *The Sheltered Life* (1932); *Vein of Iron* (1935); *Collected Works* (1933; 1938); nonfiction, *A Certain Measure: An Interpretation of Prose Fiction* (1943).

GLASS. See CHEMISTRY; MELLON INSTITUTE.
GLIDERS. See AERONAUTICS.

GODDARD, Robert Hutchings, American physicist: b. Worcester, Mass., Oct. 5, 1882; d. Baltimore, Md., Aug. 10, 1945. He was professor of physics at Clark University, 1919–43. Chief of navy research on jet-propelled planes, Dr. Goddard was an internationally known pioneer in rocket propulsion. Since 1934 he had been on leave of absence at his laboratory in Roswell, N.M., working under Daniel and Florence Guggenheim Foundation grants, and since 1943 he had been employed by the government as a consulting engineer, doing special experimental work at Roswell. Dr. Goddard was one of the first to install accurate gyroscopic steering mechanisms on rockets and to devise parachutes for their descent. One of the most important advances in rocket science which he achieved was the means of insuring a continuous flow of power instead of merely an initial explosion.

GOEBBELS, Paul Joseph, Nazi propagandist: b. Rheydt, Germany, Oct. 29, 1897; reported to have committed suicide in Berlin, May 2, 1945. Diminutive, club-footed, Dr. Goebbels put into effect with incredible success Adolf Hitler's principle of falsification as a legitimate means of achieving power, first in his unofficial capacity as party spokesman, later as the Third Reich's minister of propaganda and public enlightenment (1933–45), and contributed as much toward infecting the German nation with nazism as did Hitler himself.

Dr. Goebbels was exempted from military service in the First World War because of his deformity, and in 1921, took his doctorate of philosophy at the University of Heidelberg. During French occupation of the Ruhr, he did organizational work for the Nazis and was expelled from the Rhineland by the French in 1924, the year he joined the Nazi Party. Moving to Elberfeld (Wuppertal), he edited a small newspaper; soon gained party recognition as a platform speaker, a role for which he had a natural ability; and toured towns of the northern Rhineland, ranting against the Allies, the Weimar Republic, and the Versailles Treaty.

By 1926, when he first met Hitler, he had disassociated himself from the Nazi left wing element with which he had originally been identified, and put his talents at the service of the Hitler faction. In October of that year, he was rewarded with the post of *gauleiter* for Berlin, later for the entire Brandenburg Province. In 1927, he founded his weekly, *Der Angriff* (*The Attack*), which in 1930 became a daily. Here his venomous pen had full play. It is said that at one time he had 126 libel suits pending against him. His literary efforts, however, like his oratory, continued to pay dividends. In 1928, he was elected to the Reichstag; in 1929, appointed Reich propaganda leader; and in 1930, re-elected to the Reichstag.

Goebbels is said to have planned, with Marshal Göring and other high Nazi officials, the Reichstag fire, staged on the eve of a national election in February 1933 to legalize Hitler's usurpation of power, and he is also credited with conceiving the idea of the burning of the books, whereby thousands of volumes of the world's finest literature were destroyed because they were regarded as "inimical to Germany's national interests."

He was author of the national press law, passed in October 1933, which provided Nazi-made rules for admission to the newspaper profession, and reduced German journalism to a government function. In November 1933, he reached new heights with his creation of the National Kultur Chamber—a body governing music, the graphic arts, literature, sculpture and painting, motion pictures, radio, and the theater. As its president, he assumed control of the entire cultural life of Germany.

GOLD. The final estimate of refinery production of gold in the United States (Alaska included) during 1944 was 1,022,238 fine ounces, as compared with 1,394,522 ounces mined in 1943, according to the report compiled by the United States Bureau of the Mint, with the cooperation of the Bureau of Mines. The value of the gold produced, calculated at $35 per fine ounce, was $35,778,330 in 1944 compared with the 1943 value of $48,808,270. Of the 1944 output, Utah contributed 353,550 fine ounces; Arizona, 127,619 ounces; Nevada, 115,561 ounces; and California, 115,555 ounces. Alaska's output in 1944 was 50,848 fine ounces, and South Dakota's production dropped to 10,875 ounces.

GOLD COAST. See BRITISH WEST AFRICA.
GOLF. See SPORTS IN 1945.

GORING, Hermann Wilhelm, German Reichsmarshal: b. Rosenheim, Bavaria, Jan. 12, 1893. Former commander in chief of the German Air Force and one-time successor designate to Adolf Hitler, Hermann Göring surrendered to the American Seventh Army on May 9, 1945; was later indicted as a major Nazi war criminal and held for trial before the International War Crimes Tribunal. An early member of the Nazi Party, he held a number of key positions in the Nazi hierarchy between 1932 and 1945, among them that of Reichstag president (1932ff); trustee of the four-year plan under which civilians of overrun countries were enslaved; and president of the council for war economy (from 1940). In this latter capacity, he diverted 50 per cent of Germany's national income to war production. Göring served in the German Air Force in the First World War, and in June 1918 became commander of the "Flying Circus" squadron made famous by von Richthofen. He was involved in the National Socialist uprising in Munich in 1923, and from 1923 to 1927, took refuge in Italy.

GOULD, Kingdon, American financier: b. 1887?; d. New York City, Nov. 7, 1945. Eldest son of the late George J. Gould, and grandson of Jay Gould, who founded the Gould fortune, Mr. Gould was graduated from the School of Mines of Columbia University in 1908, and soon after took his place on the boards of several of the so-called Gould railroads, including the Denver and Rio Grande; Missouri Pacific; Western Pacific; Texas and Pacific; as well as the Western Union Telegraph Company, in which his grandfather had been an important factor.

GOVERNMENT PRINTING OFFICE, United States. The office was established by Congress in 1860 and has been in continuous operation from that time. In addition to doing all of the printing and binding ordered for Congress, the office executes all the printing and binding required by the various executive and judicial departments, all independent establishments, and emergency war agencies of the United States government.

The total area occupied by the Government Printing Office proper in 1944 was 1,396,973 square feet or 32.1 acres. In addition, the office

occupied seven warehouses in various sections of the United States covering 125,237 square feet of floor space or 2.9 acres. During the fiscal year 1945 it was necessary to place orders with outside contractors for printing in the amount of $28,116,779.65, as the Government Printing Office was unable to handle the volume of printing necessary in connection with the war. The value of the office buildings in 1945 was $9,634,825, machinery and equipment $6,439,623, making the total value of the plant $16,074,448. At the close of the fiscal year 1945, there were 6,914 employees on the rolls with a payroll of approximately $20,000,000. The office made charges for 1,045,739,990 copies of publications of all classes. This total included 6,966,725 copies of the *Congressional Record*, 5,976,886 copies of the *Federal Register*, 3,632,330 copies of specifications of patents, trademarks, designs, etc., and 309,212 copies of the Patent Office *Official Gazette* and annual indexes. The number of postal cards printed amounted to 2,386,933,000 and money orders 300,696,304. The stores division and warehouses handled 6,314 carloads of paper weighing 292,110,941 pounds. The Division of Public Documents mailed out 166,748,939 publications and forms; its receipts from the sale of government publications during the year amounted to $2,180,476.66. The total charges made to Congress and all other government agencies during the fiscal year were $77,528,513.47.

A. E. GIEGENGACK,
Public Printer.

GOZO ISLAND. See MALTA.

GRAHAM LAND. See FALKLAND ISLANDS.

GRANT, Heber J., American religious leader: b. Salt Lake City, Utah, Nov. 22, 1856; d. there, May 14, 1945. The Mormon Church enjoyed prosperity and expansion during Heber J. Grant's administration as seventh president, prophet, seer, and revelator of the Church of Jesus Christ of Latter-Day Saints. The son of a former mayor of Salt Lake City, Grant attended Deseret University, now the University of Utah. He became a member of the Latter-Day Saints before he had reached the age of 20 and in 1882 was elected a member of the Council of Twelve and an Apostle. He was entrusted with the founding of a Mormon mission in Japan in 1901, and three years later went to Europe, where he superintended the work of Mormon missions until 1906. He served a term as a member of the upper house of the Utah territorial legislature and for several years was a member of the Salt Lake City Council. In 1916 he became president of the Council of Twelve and two years later head of his church.

GRAPEFRUIT. See CITRUS FRUITS.

GRAPES. Production of this fruit in the United States in 1945 totaled 2,841,150 tons, as compared with the 1944 crop of 2,736,550 tons and a 1934–43 average crop of 2,474,835 tons. California, long the leading producing state, produced 2,714,000 tons in 1945; 2,514,000 tons in 1944, and 2,256,700 tons as an average crop in 1934–43. No other state approached this record. New York, the next highest, produced 33,200 tons in 1945; 59,300 tons in 1944; and an average of 58,890 tons in the ten-year period 1934–43. Michigan was third with 11,400 tons in 1945; 34,000 tons in 1944; and an average of 41,600 tons in the ten-year period 1934–43.

GRAPHITE. Production and sales of domestic natural graphite decreased in 1944, according to the United States Bureau of Mines. The combined total of crystalline and amorphous graphite produced from domestic mines was 5,408 short tons, and shipments reached 5,768 tons valued at $349,663, compared with a production of 9,939 short tons and sales of 9,597 tons valued at $903,102 in 1943. Stocks of crucible grade graphite increased through 1944 and by the end of the year were sufficient for 15 months' supply at the current rate of consumption. On Nov. 11, 1944, the War Production Board order controlling the allocation of graphite was amended to remove crucible grade graphite from the strategic class, leaving only Ceylon amorphous graphite, containing 95 per cent graphite carbon in lump or ground form, on the restricted list. In view of the favorable stock position of Madagascar flake at the end of 1944, a government contract for 1945 was not signed and Madagascar flake was released from public purchase at the end of the first quarter of 1945.

GRAZING SERVICE, United States. The Grazing Service administers 60 grazing districts in 10 Western states under the Taylor Grazing Act of 1934, as amended. No new districts were added during the past year although there were numerous internal changes involving both public and private lands. The total area of these districts is about 265,000,000 acres, more than half of which is federally owned. The remainder is in private, state, and county ownership.

The primary objectives of the Taylor Grazing Act are to protect and improve the forage and other natural resources of the public lands, promote orderly use of the range, and stabilize the livestock industry dependent upon it. The mixed land ownership in grazing districts fosters a wide variety of co-operative activities among states, individuals, and the federal government. Regardless of ownership the lands in grazing districts are inseparably related, both physically and economically, and the administration of the public lands aims to accomplish conservation and economic use of all the lands involved.

Preferences for grazing use of the public lands are given to land owners engaged in the livestock business, and owners of water or water rights whose past use of the public lands has been an integral part of their year-long livestock operations. Nearly 22,000 owners of land and water within or near grazing districts have been found to possess preference claims for grazing privileges on the federal range. The full extent of such preferences must be determined in each case. This involves an examination of lands and waters owned or controlled by the various applicants and a determination of the extent to which they are entitled to share in the use of the range. Also it requires an inventory of the range to determine grazing capacities and other related factors.

Range surveys to determine grazing capacities and proper stocking of the public lands are an essential part of conservation and management of the range. This part of the Grazing Service program has been retarded considerably during the war. As a result only about two-thirds of the bona fide applicants for grazing privileges were operating on a term-permit basis at the end of the fiscal year 1945. The remainder must essentially be carried on a year-to-year license basis until the necessary data are procured.

On the whole, favorable moisture conditions,

coupled with regulated use, have enabled the grazing district lands to maintain a high level of livestock production during war years. This is in sharp contrast to the situation during and following the First World War when increased numbers of livestock on the then unregulated public lands stripped the forage and hastened its depletion without adding to food supplies of the period.

Use of the federal range under licenses and permits was fairly constant during war years. In 1942, for example, 3,745,079 animal units were licensed to graze on these ranges. In 1945, 3,760,379 animal units were licensed. (An animal unit is 1 cow, 1 horse, 5 sheep, or 5 goats.) Certain economic factors during recent years have influenced a downward trend in sheep numbers and an upward trend in cattle numbers, both nationally and in the grazing districts. The number of cattle licensed on the federal range during 1945 exceeded 2,000,000 head for the first time in grazing-district history. Wildlife numbers in grazing districts have shown a steady increase during recent years. Big game counts involving 11 major species show an estimated increase of 48,000 head over total numbers reported the previous year.

In addition to their use for grazing during the war vast acreages of grazing-district land were set aside for military purposes, mainly as training and testing areas for air and land troops. Approximately 14½ million acres of such lands were so used during the past year. In this connection it was possible, however, to provide alternate-season use of certain military withdrawals for large numbers of livestock. On the other hand, certain training grounds had to be closed exclusively to livestock. An example is the area used for the atomic bomb experiment in New Mexico.

Through co-operation with local ranchers, with states, and other federal agencies, there has been consistent improvement in the range-fire situation during recent years. In 1942, nearly 1¼ million acres were burned over. In 1944, the burned area was reduced to less than 300,000 acres. Watershed protection coupled with range improvements are important activities of the Grazing Service.

Range improvements consist of water developments, fencing, stock trails, revegetation, soil and moisture conservation, rodent control, and other activities designed to improve the forage and facilitate its use.

In undertaking to rehabilitate the range and stabilize its use, the Grazing Service, generally, has had the active support and co-operation of the users themselves, including the district advisory boards. In the 11 years since the passage of the Taylor Grazing Act, slow but steady progress has been made. A vast opportunity lies ahead in grazing districts for increasing the forage growth with resulting benefits accruing to the livestock industry itself and hence to the public generally. See also FOREST SERVICE, UNITED STATES.

C. L. FORSLING,
Director, United States Grazing Service.

GREAT BRITAIN, or UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND. A constitutional monarchy comprising England, Wales, Scotland, Northern Ireland, the Isle of Man, and the Channel Islands; area, 94,504 square miles; estimated population (Dec. 31, 1942), 48,332,700. Together with the Dominions and dependent territories overseas, it constitutes the British Commonwealth and Empire. With the exception of certain fundamental laws, commencing with Magna Carta (1215), the constitution is, for the most part, unwritten and customary. The present monarch is King George VI (b. Dec. 14, 1895), who succeeded to the throne Dec. 11, 1936, following the abdication of his elder brother, Edward VIII (now His Royal Highness the duke of Windsor).

Area and Population.—The estimated figures for 1942 gave the area and population of the several divisions of Great Britain as follows:

Divisions	Area, square miles	Population 1942
England	50,337	41,896,063
Wales	8,006	
Scotland	30,410	5,043,070
Northern Ireland	5,449	1,342,267
Isle of Man	227	50,829
Channel Islands	75	92,000
	94,504	[1]48,424,229

[1] Pop. 48,332,700 with war casualties deducted.

Around the main British island are about 500 smaller islands, the populationse of which, with the exception of the Isle of Man and the Channel Islands, have been included in those of England, Scotland or Wales, according to the coasts to which they lie nearest.

Because of conditions obtaining during the Second World War, no decennial census was taken in 1941. The capital of England is London. In 1931, the population of the Administrative County of London was 4,397,003, and of Greater London, 8,203,942. Edinburgh (pop. 439,010) is the capital of Scotland; Belfast (pop. 438,086), of Northern Ireland; Douglas (pop. 19,328), of the Isle of Man; and St. Helier (pop. 28,000) and St. Peter Port (pop. 18,250) are respectively the capitals of Jersey and Guernsey, in the Channel Islands.

Religion.—Civil disability because of religion is not attached to any class of British subjects. The inhabitants of Great Britain are almost entirely Christian, there being some 300,000 Jews and a lesser number of non-Christian immigrants. The Established Church of England is Protestant Episcopal in its form of government. According to the latest statistics, the Angelican faith has 2,294,000 full members in England, Wales, the Isle of Man, and Channel Islands. The king, as supreme governor of the Church of England, nominates to vacant archbishoprics, bishoprics, and other offices specified as within the gift of the crown. In England, there are two archbishops, Canterbury and York, 41 bishops, and 40 suffragan bishops. The church in Wales and Monmouthshire was disestablished as from March 31, 1920, Wales being constituted a separate archbishopric. The Established Church of Scotland is Presbyterian in its form of government; at the General Assembly the sovereign is represented by a lord high commissioner, appointed by the king. Members of the Church of Scotland, according to most recent statistics, number 1,278,297, besides adherents. In Scotland there are also 614,021 Roman Catholics and 61,547 Episcopalians. Northern Ireland has 428,290 Roman Catholics, 390,931 Presbyterians and 345,474 Episcopalians. Roman Catholics in England and Wales number 2,361,504; this church has four archbishops, 14 bishops, and some 4,000 priests.

Education.—Publication of statistical information on education became one of the war casualties in Great Britain, shortages of labor and paper necessitating drastic curtailment of much government printing on this and other subjects. In 1939 there were 21,678 elementary schools in England and Wales, including public elementary,

special, nursery and certified efficient, with an enrollment of 4,971,327 pupils. There were also 609 special schools for the blind, deaf, mentally defective, physically defective and epileptic); 19 Poor Law schools; 115 nursery schools; and 357 play centers. Scotland had 2,143 primary schools in 1942-43 with 381,926 pupils; and Northern Ireland, 1,667 primary schools with 185,542 pupils.

There were 2,156 secondary efficient or approved schools in England and Wales in 1938, of which 1,398 received state aid. Pupils enrolled in efficient schools numbered 569,089. There were also 81 technical colleges providing advanced courses, 208 institutions at which technical day classes were held, and 6,124 evening schools giving part-time technical instruction. Teacher-training courses were offered in 106 schools and 84 art classes. Defective students receiving instruction in higher education courses numbered 1,709, of which 1,059 were blind. In Scotland there were 986 schools with secondary divisions in 1943, these had 357,964 students. Northern Ireland had 17,535 students enrolled at 75 schools with secondary divisions.

The public system of education in England and Wales was reconstructed drastically by the Education Act (1944). For the first time, all children are to be given a free, full-time secondary education. The period of compulsory school attendance has hitherto been from 5 to 14; the leaving age is to be raised to 15 not later than April 1, 1947, and subsequently to 16 when sufficient buildings and teachers are available. Primary education now covers all educational provision for children of 11 and under; for children of 11 and over there are three main alternative types of education open—by the grammar school (education mainly of an academic nature), by the modern school (education embracing both literary and practical subjects), and by the technical school (catering for the student with a more practical bent). Not later than April 1, 1950, county colleges are to be established for young people who have left school before reaching the age of 18; part time attendance during working hours will be compulsory. The Family Allowance Act, which became low on June 15, 1945, provides that parents will be paid an allowance of 5 shillings a week for each child after the first (and if the parent is sick or unemployed, an allowance of the same amount is paid for the first child); the school-meals plan, which dates from 1906, was also extended, all children in public primary and secondary schools being given free meals without application by parents and regardless of means. In order to raise the school-leaving age to 15, and additional 13,000 teachers are required; an emergency training scheme instituted in 1945 is expected to provide this number within three years. The Education (Scotland) Act of 1945 contained fewer innovations than the 1944 measure for England and Wales, because many of the major reforms in the latter were carried out in Scotland many years ago; *Educational Reconstruction in Northern Ireland*, a White Paper published on Dec. 11, 1944, outlined proposals akin to those in the English act of 1944 though in some particulars they were not quite so far-reaching.

In England the highest education is given at 11 universities, including Oxford University, with 22 colleges and 3 private halls, and Cambridge University, with 17 colleges and 1 hall. In Scotland there are 4 universities; and Wales and Northern Ireland have 1 university each. While 1 in 900 of the population attends British universities generally (half of them aided by grants or bursaries), 1 in 450 of the Scottish population attends the universities of Scotland. The accompanying table gives the number of professors, and the number of students in the universities (1944-45), foundation dates being given in parantheses:

Universities	Professors	Students
England:		
Oxford (1163)	230	2,638
Cambridge (c.1209)	373	3,364
Durham (1831)	339	2,289
London (1836)	1,267	10,458
Manchester (1880)	329	2,576
Birmingham (1900)	334	1,651
Liverpool (1903)	358	1,722
Leeds (1904))	415	1,737
Sheffield (1908)	210	2,085
Bristol (1909)	311	965
Reading (1926)	150	1,534
	4,316	31,019
Wales:		
University of Wales (1903)	350	2,126
Scotland:		
St. Andrews (1411)	169	1,080
Glasgow (1450)	291	3,585
Aberdeen (1494)	190	1,015
Edinburgh (1582)	342	2,859
	992	8,539
Northern Ireland:		
Queen's University (1909)	130	1,789
Grand total	5,788	43,473

[1] 1943–44.

There are also university colleges in England at Exeter, Nottingham, Southampton, Leicester and Hull, and special agricultural colleges at Carlisle, Cirencester, Newport, Kingston-on-Soar, Wye, Uckfield and Ripley. In Wales is an independent college at Lampeter, university colleges at Aberystwyth, Bangor, Cardiff and Swansea, and the Welsh National School of Medicine. There is a special agricultural college in Scotland at Glasgow.

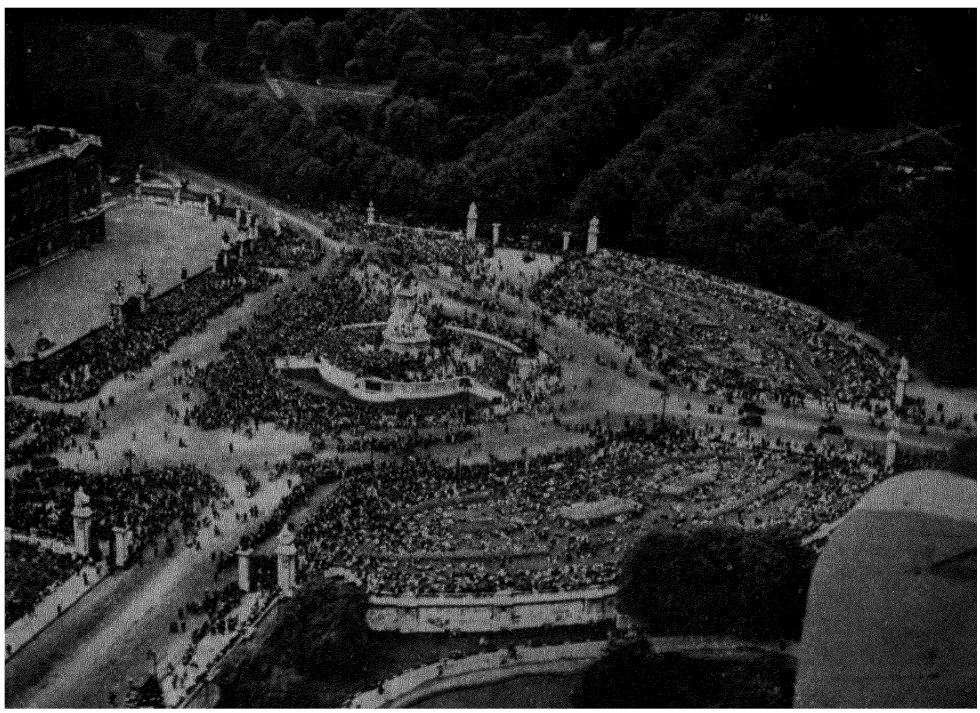
All universities accept students from abroad who have passed examinations considered equivalent in standard to their own. The College Entrance Examination Board of the United States, New York City, is the official agent for conducting the entrance examinations of the University of London. Appointments to Rhodes scholarships at Oxford University, which were interrupted by the outbreak of war, are to be resumed in 1946; in addition to the regular scholarships, a limited number of war service scholarships have been created for men who have seen at least one year of war service and have completed one year (instead of the customary two years) of university work.

Government.—The present form of Parliament, as divided into two houses of legislature, dates from the middle of the 14th century. The House of Lords, consisting of peers who hold their seats by hereditary right, by creation of the sovereign, by virtue of office, or by election, has a possible membership of about 740; the average attendance, however, is less than 100. The House of Commons consists of representatives from county, borough, and university constituencies. The county and borough members are elected by popular male and female vote; university representatives are chosen by the respective universities, except that two or more representatives must be chosen by popular vote. The House of Commons elected in 1935 had 615 seats, that of 1945, 640 seats; periodical redistribution of seats on the basis of changes in the distribution of the population was enacted in 1944, but this could not be put into effect before the general

GREAT BRITAIN



Air view taken in April 1945 of Wemyss Road, Blackheath, southeast of London, in the metropolitan borough of Lewisham, showing the damage done by a rocket bomb in March 1945. Note temporary repairs and tarpaulins on roofs.



Courtesy British Information Service

RAF photograph taken from low-flying aircraft, May 8, 1945, showing V-E Day celebrations outside Buckingham Palace.

election of 1945 and therefore, as an interim measure, 20 large constituencies were subdivided into 45 seats. Five years is the maximum life of a Parliament though, except in wartime, it is rare for a Parliament to last the full period. Members of the House of Commons receive £600 per year (but members of the House of Lords are not paid), and Cabinet ministers receive higher salaries on a graduated scale; a salary is also paid on a Cabinet scale to the "leader of His Majesty's Loyal Opposition" (the principal parliamentary opponent of the prime minister). The voters do not elect a prime minister directly; after a general election the king invites the leader of the party which has obtained a majority of seats in the House of Commons to become prime minister and form a government.

The life of the Parliament of 1935 had been extended annually during the war after Nov. 25, 1940, when its statutory five years had expired, but its duration ended shortly after May 1945, when leaders of the Labour Party declined Prime Minister Winston Churchill's invitation to remain in his Coalition Cabinet another 18 months, or until the end of the war against Japan. Rejecting Labour's counterproposal to maintain the existing government until October, on May 23 Winston Churchill took the first step toward immediate dissolution of Parliament by resigning the premiership of the coalition government; the king, as is the constitutional practice, forthwith reappointed him prime minister, and he formed a new Cabinet composed exclusively of his Conservative supporters to serve until after the election. On June 15 the king formally dissolved Parliament, the longest since 1679, and summoned a new Parliament, to be chosen in July; the general election took place on July 5, though in some places voting took place one week or two weeks later, because some towns followed an old custom of shutting down for a week or two in the summer for community vacations.

The 640 seats in the House of Commons were contested by 1,680 candidates—603 representing the Labour Party, 541 the Conservatives, 307 the Liberals, the rest minor parties and independents. Viscountess Astor (Nancy Witcher Langhorne, of Virginia), first woman to sit in the House of Commons, chose not to stand for re-election after her 25 years of continuous service; Winston Churchill stood for the newly created Woodford division of Essex, his former constituency of Epping having been divided in the redistribution of seats. Foreign policy was not an issue in the campaign, the principal points in the program of all parties being adequate housing (particularly for those whose homes had suffered during the war), social security, full employment, improved health measures, and extension of educational facilities. While the Conservative Party promised early removal of wartime restrictions on private initiative and the exercise of free enterprise, the Labour Party stood for increased measures of state ownership and operation of key utilities and industries; the Liberals took a middle position, supporting the small trader, condemning cartels and price-fixing rings, and favoring nationalization where public ownership might prove more economic. The campaign was much more bitter and heated than customary at British elections (though, perhaps, it would have been regarded as comparatively mild and good-humored in some other countries), personalities arousing greater interest among the voters than programs.

Results of the general election, announced on July 26, showed a sweeping victory for the Labour Party, which captured more than half the seats. Britain's swing to the Left proved more pronounced that even Labour had expected. Out of 24,996,905 votes cast, Labour received 11,971,464, the Conservatives 9,022,341, the Liberal Party 2,282,197, and all other parties combined 1,720,903. The number of seats secured in the House of Commons by the various parties was as follows:

Government:		*Opposition:*	
Labour	393*	Conservative	198
Liberal	12	Ulster Unionist	10
Independent Labour Party	3	National	2
Commonwealth	1	Liberal National	13
Communist	2		214
Ulster Nationalist	2	*Independent*	13
	413	Total seats	640

* Including 1 Ulster Labour.

While Winston Churchill and Anthony Eden were re-elected, 13 members of the former Conservative government were defeated, including Lionel S. Amery, Brendan Bracken (later elected at a by-election), Sir James Grigg, and Leslie Hore-Belisha. The Liberal Party lost their leader, Sir Archibald Sinclair, and also Sir William Beveridge and Sir Percy Harris; the Commonwealth Party returned only one member, and shortly thereafter its leadership was relinquished by Sir Richard Ackland, its founder and one of those defeated. While the preceding Parliament had only 14 women members at the time of its dissolution, 23 women were elected in July, 21 of them being Labour members.

Clement R. Attlee, leader of the Labour Party, accepted the king's invitation to form a government, which was shortly announced as follows:

CABINET

Prime Minister, First Lord of the Treasury, and Minister of Defence—Clement Richard Attlee
Lord President of the Council and Leader of the House of Commons—Herbert Stanley Morrison
Secretary of State for Foreign Affairs—Ernest Bevin
Lord Privy Seal—Arthur Greenwood
Chancellor of the Exchequer—Edward Hugh John Neale Dalton
President of the Board of Trade—Sir Richard Stafford Cripps
Lord Chancellor—Lord Jowitt
First Lord of the Admiralty—Albert Victor Alexander
Secretary of State for the Home Department—James Chuter Ede
Secretary of State for Dominion Affairs and Leader of the House of Lords—Viscount Addison
Secretary of State for India and Burma—Lord Pethick-Lawrence
Secretary of State for the Colonies—George Henry Hall
Secretary of State for War—John James Lawson
Secretary of State for Air—Viscount Stansgate
Secretary of State for Scotland—Joseph Westwood
Minister of Labour and National Service—George Alfred Isaacs
Minister of Fuel and Power—Emanuel Shinwell
Minister of Education—Ellen Cecily Wilkinson
Minister of Health—Aneurin Bevan
Minister of Agriculture and Fisheries—Thomas Williams

Finance.—Total ordinary expenditure in 1944-45 had been placed at £5,937,399,000; the actual expenditure proved to be £6,062,905,000, most of the excess of £125,506,000 arising from the year's expenditure on war damage, which had been excluded from the budget estimate. Revenue exceeded the estimate by £136,263,000 in 1944-45, £3,101,800,000 having been budgeted and £3,328,063,000 actually received; the principal increases were in income tax, estate duties, national defense contribution, and excess profits tax. Thus the amount by which expenditure over the year exceeded revenue was £2,824,842,000, less than the budget estimate by £11,000,000; 53 per cent of the total expenditure was met out of current revenue, con-

stituting a record for pay-as-you-go operation of the war. The national debt stood at £22,398,-100,000 on March 31, 1945, liabilities to overseas creditors exceeding £3,000,000,000 and expected to reach £4,000,000,000 before all war costs had been met.

Two budgets were presented to Parliament for the fiscal year commencing April 1, 1945, the first that of Churchill's coalition government, and the second being that of Attlee's Labour administration. In the first budget, expenditure was estimated at £5,565,281,000 and revenue at £3,265,000,000. Thus, with an excess of expenditure over revenue of £2,300,281,000, almost 59 per cent of expenditure was to be met out of revenue, current resources being devoted to the war or reconstruction rather than to meeting demands for consumable goods and services. Actual expenditure for the first six months of the fiscal year 1945–46 totaled £2,751,118,389, little less than the figure for the preceding six months (£2,944,611,584) despite the fact that the war was over; total ordinary revenue in the first six months of 1945–46 was £1,363,151,854, the deficit thus being £1,387,966,535. Hugh Dalton, Labour's chancellor of the exchequer, presented the second 1945–46 budget to the House of Commons on October 23. While agreeing with his predecessor's estimates of revenue and expenditure, he announced certain changes in the revenue schedule.

Lend Lease and Reciprocal Aid.—The president's 20th report to the United States Congress on lend-lease, issued Aug. 30, 1945, showed that Britain had received from the United States lend-lease shipments from March 1941 to July 1, 1945, of a total value of $13,498,784,000 (£3,-374,696,000); munitions accounted for $6,784,-953,000 (£1,696,238,250), the rest comprising industrial materials and products and petroleum and agricultural products. The president reported that Britain "has produced 70 per cent of all the munitions, equipment ,and supplies used by the armed forces of the British Commonwealth and Empire," and "has been a war production arsenal for the United Nations second only to the United States."

Down to June 30, 1945, Britain, exclusive of the Dominions, furnished to the United States reciprocal aid (reverse lend-lease) valued at £1,080,300,000, a great variety of supplies and services including "strategic materials such as crude rubber for American war production, foodstuffs such as cocoa, tea, fats, and oils, and valuable technical information and inventions for our armed forces and war production."

Postwar Financing.—British economy before the war was completely dependent upon large imports of food and raw materials, these being paid for by the income from overseas investments and from exports of manufactured products. Early in the war, American investments of British subjects had been taken over by the government, which sold them in the United States and used the dollars there to purchase many goods and services outside the scope of lend-lease; one billion dollars was so spent in the United States in 1944 alone by Britain and the other sterling area countries. At the same time, Britain sacrificed two thirds of her normal exports so as to employ the manpower thus released in direct war activities, this being possible because her essential requirements were being met by lend-lease and, to a lesser extent, by mutual aid from Canada and the equivalent of loans from countries in the sterling area. As of June 30, 1945, Britain's external liabilities totaled £3,381,250,000 (as compared with £480,000,000 on Aug. 31, 1939), £2,743,750,000 of these liabilities being within the sterling area. The consequence of the loss of investments and the cessation of lend-lease on Aug. 21, 1945, was that the volume of postwar exports would have to be increased by nearly 75 per cent over the prewar level in order to buy the same volume of imports as before. The British government, stunned by the abruptness with which lend-lease had been terminated without consultation and prior discussion, designated the earl of Halifax, recently reappointed ambassador in Washington, and Lord Keynes, economic adviser to the Treasury, to discuss with American officials in Washington a substitute for lend-lease.

Long drawn-out negotiations terminated on Dec. 6, 1945, when an agreement was signed under which, subject to approval of the legislatures of both countries, the United States will extend to Great Britain a line of credit of $3,750,-000,000 which may be drawn upon until Dec. 31, 1951. This shall be repaid in 50 annual instalments beginning on Dec. 31, 1951, with interest of 2 per cent; interest payment may be waived in any year in which the British government finds itself in difficulty in the matter of obtaining the necessary foreign exchange. Provisions were included in the agreement regarding "sterling area" exchange arrangements, and the relaxation of British exchange controls, and a final settlement was made of the whole lend-lease account. The net sum due to the United States from Great Britain for the settlement of lend-lease and reciprocal aid, for the acquisition of surplus property and the United States interest in installations located in Great Britain, and for the settlement of claims, was agreed at $650,000,000; this amount comprised (1) a net sum of $118,-000,000 representing the difference between the amount of the services and supplies furnished or to be furnished by either government after V-J Day through lend-lease and reciprocal aid channels, less the net sum due to Great Britain under the claims settlement; and (2) a net sum of $532,000,000 for all other lend-lease and reciprocal aid items, and for surplus property and the United States interest in installations in Great Britain and owned by the American government.

As a result of the negotiations, Great Britain agreed to subscribe to the proposals of the International Monetary and Financial Conference of 1944 (see 1945 AMERICANA ANNUAL, *Bretton Woods Conference*), the deadline for acceptance of which was Dec. 31, 1945. While congressional authority is not required for the final settlement of lend-lease (the president having that authority), Congress will have to pass upon the matter of lending funds. This was to be considered by Congress early in 1946, and meanwhile the proposal had a generally favorable reception in the United States. American exporters anticipated that the free currency basis for trade with countries hitherto tied up with the sterling bloc would prove of considerable benefit, and importers approved, in particular, the proposed International Trade Organization, formation of which, it was agreed, is to be discussed at an international conference in the summer of 1946. British opinion was less favorable, objection being taken, notably, to acceptance by Great Britain of the Bretton Woods terms and to break-up of the "sterling area." Members of both the Labour Party and the Conservative Opposition in Parliament tabled

motions to postpone ratification of the Bretton Woods protocol and to reject the financial agreement with the United States.

War Effort.—By the time hostilities ceased, Britain's position was precarious in the extreme. During the past six years she had cut down her exports to 30 per cent of the prewar volume, had sold overseas investments totaling more than £1,000,000,000 in order to purchase war goods, and had contracted an overseas debt amounting to £4,000,000,000. Even more serious was the fact that, since she must import to live, 12,000,000 tons of Britain's 21,000,000 tons of merchant shipping had been sunk and only 5,000,000 tons of new vessels had been built, shipyards being devoted almost entirely to warship construction. As hostilities ended, 300,000 British troops were employed in the war against Japan. While forces were to have advanced from Burma into Siam and against Malaya, five divisions (British, Indian, Australian, Canadian, and New Zealand) would have served under General MacArthur in the invasion of Japan. Over 60 per cent of the Royal Navy (in itself a force three times the size of the entire navy in 1939) was serving in the Orient, one fleet supporting the campaigns of Admiral Lord Louis Mountbatten and another operating with the United States Navy in the Ryukyus and elsewhere. (For further information on the Royal Navy, see NAVAL PROGRESS.)

Great Britain, with a population of less than 50,000,000, had 5,500,000 men in the armed forces, about one third of the total male population. Casualties in the war totaled nearly 1,000,000. As of Aug. 14, 1945, casualties for Great Britain alone were as follows:

	Killed	Missing	Wounded	Prisoners of War	Total
Armed forces	244,723	53,039	277,090	180,405	755,257
Merchant Navy	30,189	5,264	4,402	5,556	45,411
Home Guard	1,206	.....	557	.....	1,763
Civilians	60,585	.....	86,175	.....	146,760
Totals	336,703	58,303	368,224	185,961	949,191

The total casualties of the British Commonwealth of Nations (q.v.) were 1,439,959, of this figure 949,191 being casualties among the men and women of the British Isles, at home and abroad. Casualties among the armed forces alone for the entire Commonwealth totaled 1,246,025, Britain losing 755,257 men and the remainder 490,768. Not only in total but in proportion to population, Britain sacrificed more than any other part of the Commonwealth.

One out of every 112 Londoners was a war casualty requiring hospital treatment some time during the war; with a population of about 9,000,000, 29,890 residents were killed and 50,497 injured. The bombing by stratosphere rockets, which commenced on Sept. 9, 1944, was London's third and greatest ordeal. A total of 1,050 such rockets landed in Britain, mostly in London, killing 2,754 persons and injuring 6,523; no adequate means of defense against the rockets were found, and the attacks did not cease until the launching sites were overrun by the troops advancing through the Netherlands. By Sept. 10, 1945, the War Damage Commission had been notified of damage to 3,281,953 separate properties throughout Britain, and more claims had yet to be made.

Manpower.—As of Dec. 31, 1945, the total working population of Great Britain, excluding private domestic service, was estimated to number 20,680,000; of this total, 20,005,000 were in employment (including the armed forces), 375,000 were former members of the forces who had not yet taken up employment, and 300,000 were unemployed. The average weekly earnings rose 76 per cent during the war, from £2 13s. 3d. in October 1939 to £4 13s. 9d. in January 1945. While wage rates rose by about 39 per cent and average earnings (take-home pay) by 76 per cent, the official cost-of-living index was maintained, through subsidies, at not more than 30 per cent above the 1939 level; clothing, fuel, and light showed the greatest increases, and (because of controls) rent and food the least.

Agriculture.—During the war, farmers received a government grant of £2 per acre toward the cost of plowing, and as a result Britain was able to produce 80 per cent of her food needs, as against 33⅓ per cent before the war. In 1945, however, 570,000 acres less were sown in grains than in the preceding year (7,535,000 acres in 1944 and 6,965,000 acres in 1945); there were decreases in the acreages devoted to wheat (813,000) and potatoes (20,000), but increases in those of barley (199,000), oats (84,000), mixed corn (90,000), and turnips, swedes, and mangolds (4,000). The area devoted to vegetables increased during the war from 280,000 to 450,000 acres; restrictions on the growing of flowers outdoors was removed in 1945. Britain now produces all her domestic sugar supply, and the byproducts from the sugarbeet fields furnish large amounts of livestock food. The harvest of 1945, which had been one of the most promising in living memory, was damaged by heavy rains, and not more than 75 per cent of the estimated crop yield was expected to be harvested. An orchard census in 1944 showed that there were over 15,000,000 apple trees, 3,000,000 more than when the last census had been taken in 1925; soft fruits were being cultivated on 33,750,000 acres, less than half the acreage 20 years earlier, the greatest decline being in strawberries, raspberries, and blackcurrants. In spite of the loss of acreage through the plowing-up schemes, dairy farmers broke all records for production during the war. Cattle numbered 7,328,000 in 1945 (7,505,000 in 1943) and pigs 1,687,000 (1,381,000 in 1943 and 3,515,000 in 1939); the pig and poultry industries were major agricultural casualties of the war, specialists formerly growing no feeding stuffs themselves but depending upon imported feeds.

Industry.—With the end of the war the government relaxed restrictions on the manufacture of numerous products for domestic consumption, and released for private use many factories which had been built as reserve plants in anticipation of damage by V-bombs. Statistics on steel production during the war showed that the peak year was 1943, with 13,031,000 tons (compared with the average annual rate, 1935–38, of 11,257,000 tons); production in 1944 was 12,142,000 tons, and for the first six months of 1945 it was at an annual rate of 11,970,000 tons. Exports of steel fell to 122,000 tons in 1943, against an annual average of 2,438,000 tons in 1935–38; exports of steel for the whole year 1945 were expected to exceed 1,000,000 tons.

From outbreak of war in 1939 to the end of 1944, British shipyards built 1,240 merchant vessels totaling 5,723,000 gross tons; British mer-

chant shops lost down to May 8, 1945, numbered 3,180, the tonnage being 12,500,000.

New Minerals.—Further borings for petroleum were made after location of the first field on June 19, 1939, at Eakring, near Mansfield, Nottinghamshire, wells being brought into production during the war in the same district at Kelham Hills, Duke's Doods, and Caunton. The 240 wells in Britain were producing during the war a total of just under 70,000 tons (21,000,000 gallons) of petroleum yearly, this sufficing for only a minute part of British requirements. These drillings also disclosed new coal fields east and southeast of Lincoln; potassium deposits—the first in Britain—at Eskdale; and two natural gas wells giving, respectively, two and five million cubic feet of gas daily. These byproducts of petroleum prospecting are of considerable economic value.

External Trade.—The following table shows the value of recent import trade, compared with 1938, the general rise in average values being borne in mind:

	Imports to the United Kingdom		
	1938	1944	Jan.–June 1945
	(In £ millions)		
Total Imports:			
From British countries	371.5	514.4	263.6
From U.S.A.	118.0	532.6	218.1
From other countries	430.0	259.2	116.0
Total	919.5	1,306.2	597.7
Re-Exports	61.5	7.4	23.3
Retained Imports	858.0	1,298.8	574.4

The increase in re-exports in 1945 as compared with 1944 was largely due to the shipment of relief goods to liberated countries in Europe. Effective from July 1, 1945, prewar rates of duty were restored on a variety of imported products that had entered Britain duty-free during the war because they had been brought into the country exclusively for war purposes. Value of the export trade in 1944 and the first half of 1945, compared with 1938, is shown in the following table:

	Exports from the United Kingdom		
	1938	1944	Jan.–June 1945
	(In £ millions)		
To British Countries	234.7	169.8	98.9
To U.S.A.	20.5	17.7	8.5
To other countries	215.6	70.6	65.6
Total	470.8	258.1	173.0

Exports of essential goods to liberated countries in Europe accounted for £28 million in the first half of 1945; while the greater part of these shipments were consigned to France and Belgium, not all goods sent to Belgium were destined for consumption in that country. Exports in the first half year also included special consignments of machinery and other equipment to Russia and exports to the United States under mutual aid; these, together with the exports to liberated countries, accounted for more than one fifth of the total exports. Export licensing regulations were relaxed, on June 8, 1945, on several hundred items including raw materials, semimanufactured products, and manufactured goods.

Transportation.—The railroads (with an aggregate mileage of 19,132), and the London Passenger Transport Board, were under government control during the war, the Treasury paying the joint undertakings a fixed annual rental totaling £43,469,000. For the year ended Dec. 31, 1944, pooled receipts amounted to £394,360,000, and expenditure was £301,167,000; the net revenue of the pool, after deduction of rents, interests, and other miscellaneous items, was £90,256,000, and thus the national exchequer made a profit of £46,787,000 from the controlled undertakings. The railroads own 953 miles of canals and other inland waterways have a length of 1,425 miles, giving a total of 2,378 miles. Highways in Great Britain have a total mileage of 180,527 (27,545 first class), of which 154,566 are in England and Wales and 25,961 miles in Scotland. Britain suffered a net loss of one third of her merchant shipping during the war; she commenced with 21,000,000 gross tons and built 5,723,000 tons, but (down to May 8, 1945) lost 12,500,000 tons. Most of Britain's largest ships, however, survived.

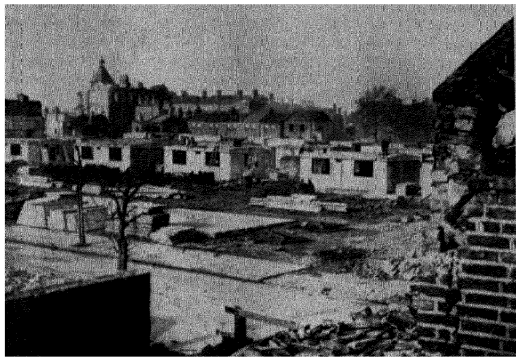
The railroads operate steamship, motorbus, and internal air services. During the war the aircraft of railroad air services and associated companies flew 6,000,000 miles without loss of life except on one occasion through enemy action, and carried 250,000 passengers and 6,000,000 pounds of cargo and mail. The British Overseas Airways Corporation, a nationalized undertaking, operated all external services during the war. Provisional figures for 1944–45 (contrasted with the actual statistics for 1940–41) include the following: capacity ton-miles, 52,831,095 (8,375,290); passenger ton-miles, 19,125,889 (3,345,846); cargo ton-miles, 13,527,532 (2,161,701); mail ton-miles, 6,296,272 (783,397); passengers carried, 99,500 (19,834); pounds of cargo carried, 13,137,600 (1,003,520). Lord Winster, the Labour government's minister of civil aviation, announced in the House of Lords on Nov. 1, 1945, that all air services, internal and external, were to be nationalized. Health Row, in Middlesex, 14 miles west of the center of London, became Britain's principal civil airport on Jan. 1, 1946.

In the House of Commons, also on November 1, Hugh Dalton, chancellor of the exchequer, stated that the government, adopting the recommendation of the Commonwealth Telecommunications Conference earlier in the year, proposed to acquire the worldwide telecommunications services operated by Cable and Wireless, Limited. The internal telegraph and telephone services of Great Britain have long been a state-owned enterprise managed by the Post Office Department.

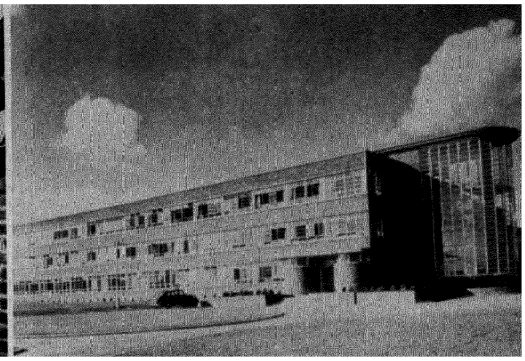
Principal Events.—The sweeping victory won by the Labour Party in July 1945 was given it by a people utterly wearied after six years of war and hopeful that by a change of government it could ensure security and far-reaching measures of social reform. All the new leaders had gained experience in Winston Churchill's coalition government. Prime Minister Attlee, intelligent and honest, though somewhat colorless, was backed up by two strong administrators, Ernest Bevin and Herbert Morrison, upon whom major responsibilities would certainly fall; while outside Parliament the Cabinet was supported by Harold Laski, chairman of the party's executive committee, and others who had been long in the inner councils. The new government had secured a broad base of public support, and was likely to be given opportunity to implement its campaign pledges.

The first fruit of victory for the British people proved to be still greater austerity. Food rations had been cut drastically in May, meat supplies per head per annum being reduced to 100 pounds (162 pounds in the United States), and supplies of bacon, cooking fat, soap, and milk also being lowered. By August, with the war against Japan ended, sugar supplies were again reduced, and clothing was rationed down

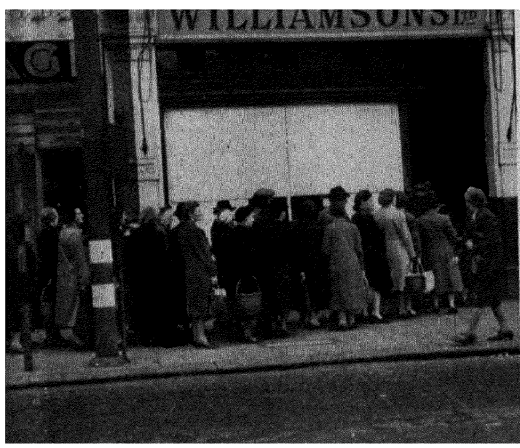
GREAT BRITAIN



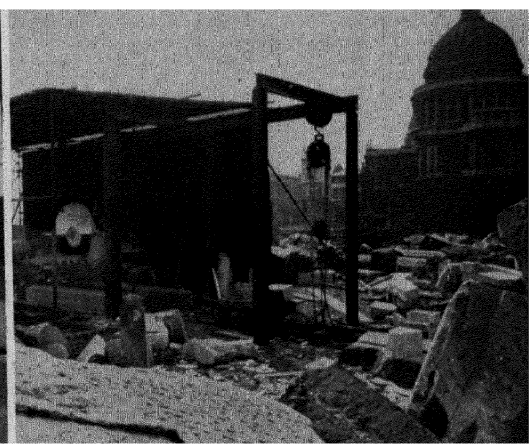
In London, workmen are putting the finishing touches to the roofs of temporary huts. These huts are being built on bombed sites, and the existing electricity and water mains are being utilized.



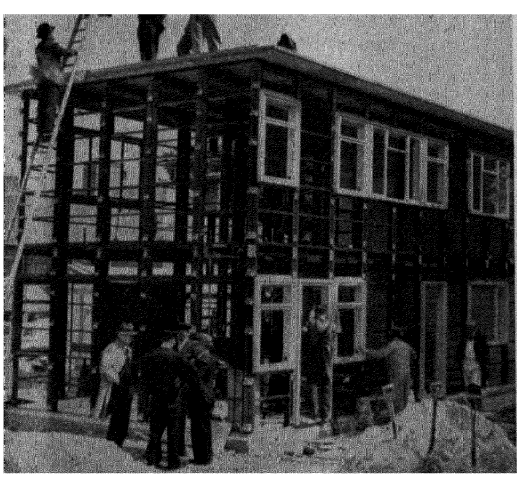
Modern British school design is well exemplified in this picture of a country boys' school in Kent. The glass enclosure on the right, while adding to the beauty of the construction, houses the main staircase.



Nearly everywhere in Great Britain, housewives are queueing for fish, for fruit, for cakes and buns, even for the humble potato. For the most part, they line up cheerfully and are philosophic about their frequent disappointments.



In the shadow of St. Paul's Cathedral, an electrically driven stonecutter is at work, and alongside it is a huge pile of portland stone which has been collected from some of London's bombed churches. This stone is being cut and reshaped, and is to be used in the reconstruction of London.



Builders have completed the steel framework and window frames of two of London's first prefabricated modern semi-detached houses, with up-to-date plumbing, electric light, bathrooms, refrigerators, and central heating.



Crowds cheer the successful candidates after the declaration of the poll at Stepney on July 26, 1945. Rt. Hon. Clement R. Attlee and Mrs. Attlee in center of the picture.

to a point equal to only one third of normal prewar consumption; and early in October motorists were told that gasoline rationing must continue for an indefinite period. On October 15, Parliament extended the wartime controls by the government for a further five years. For that period the government was empowered to regulate the prices of food, clothing, labor, and building materials, to requisition housing, to decide the types of work done in factory, and to restrict workers in their choice of jobs. Such vast powers had never before been given to a British government in times of peace. Conscription for the armed forces was not abandoned with the end of the war, youths of 18 being called up, and also men to the age of 30 hitherto employed in the munition industries. In October, two months after taking office, the Labour government introduced in Parliament a bill to nationalize the Bank of England, one of the principal Socialist measures promised during the election campaign. Although the Bank of England was the banker of the British government, the latter was not represented in its management and did not share in its profits, the bank thus possessing great powers to influence the working of the national economy. A considerable body of public opinion held that such authority should not lie in private hands and therefore supported the bill introduced into Parliament on Oct. 10, 1945, vesting complete responsibility for the financial policy of the Bank of England in the government. The bill would permit the government to appoint the members of the bank's controlling body and to acquire the outstanding stock of the bank, valued at £14,553,000, in exchange issuing 3 per cent bonds to the value of £58,212,000; subject to redemption at par at the discretion of the government on or after April 5, 1966, the bonds would be perpetual. Since stockholders had averaged a gross return of 12 per cent on their holdings, issuance of 3 per cent obligations to four times the value of the holdings would assure them return equal to that which they had previously enjoyed.

Traitors.—William Joyce, throughout the war a broadcaster for the Germans nicknamed "Lord Haw Haw" by the British, was brought to trial for treason in September. Despite the fact that he had claimed to be a British subject on several occasions when applying for passports, he asserted in court that, in fact, he had been a United States citizen until 1940, when he became a naturalized German. Sentenced to be hanged, he appealed the sentence through all courts up to the House of Lords; these efforts failing, he was hanged on Jan. 3, 1946. A treason was entered, however, by John Amery, son of Lionel S. Amery, who has been for many years a highly regarded member of British governments; he was executed by hanging on Dec. 19, 1945. A third British traitor brought to trial was Norman Baillie-Stewart, also charged with treason; a former officer of the Seaforth Highlanders, who had been sentenced to five years' imprisonment in 1933 for imparting military information to Germany, he became a German citizen a year before Britain declared war. By reason of this fact he did not hang, on Jan. 10, 1946, a sentence of five years' penal servitude being imposed upon him.

Foreign Relations.—There was little change in British foreign policy after the Labour government had succeeded a Conservative administration. Prime Minister Winston Churchill's position on international questions had reflected the collective opinion of his War Cabinet, in which Labour was fully represented, and Clement Attlee and his colleagues, even in the first flush of victory, were quick to pay tribute to Churchill's conduct of the war and foreign affairs. With rare exceptions, Britain was ranged alongside the United States at the San Francisco Conference and numerous other international gatherings. At the Potsdam Conference, Prime Minister Churchill and Foreign Secretary Eden, and their successors, Attlee and Bevin, were in complete agreement with President Truman and Secretary of State Byrnes, and at the abortive Council of Foreign Ministers, in London, the policies of the Anglo-American statesmen generally coincided. However, in matters concerning the two countries almost exclusively there was less unanimity. Thus, in the fields of postwar aviation and communications opinion diverged widely, and at the Anglo-American Conference on Finance and Trade, Britain did not accept the views of the United States on such subjects as the sterling bloc and imperial preference.

While Britain had American support (generally in opposition to the views of the Soviet Union) in matters concerning Germany, Italy, and the Balkans, during 1945 she was playing a lone hand in Greece, where British troops upheld the authority of the regent. British forces were also being employed, after Japan's surrender, to help restore French rule in Indo-China and Dutch power in the East Indies. The Labour government was also confronted with a difficult situation in the Middle East, where the Arab League (q.v.) had become an influential factor in British problems relating to Egypt and Palestine (qq.v.).

Interesting disclosures regarding Britain's relations with the Vichy government in 1940 were made five years later. In May 1945, on the eve of the Paris trial of Marshal Pétain, Louis Rougier, a French professor domiciled in New York City, published in Montreal a book entitled *Les Accords Pétain-Churchill* alleging a secret "gentleman's agreement" between the two statesmen which had prevented France from joining the Axis and the French fleet from falling into German hands. Rougier, who claimed to have acted as the intermediary in the negotiations, included in his book a photostatic copy of the first page of what he declared was the note drawn up by him which Churchill had approved and which he gave to Pétain. The prime minister refuted in the House of Commons on June 12 the assertion that he had concluded a secret agreement with Pétain, but did not deal with the documents published by Rougier. The Foreign Office clearly indicated that there had been a hoax, declaring that what purported in the book to be a photostatic copy of the note to Pétain (the "gentleman's agreement") was in fact the first page of a note of arguments to be used by Rougier in an interview with General Weygand, Vichy high commissioner in French North Africa; the word "Weygand" had been blacked out in the heading of the photostat document, originally titled "Entretien avec Weygand." To clarify the whole affair, the Foreign Office published the text of its own duplicate copy of the Pétain note which Rougier prepared in London, and the highly different version which Rougier gave in his book.

Britain and Atomic Energy.—With the war's end Great Britain, no less than the United States and Canada, was resolved to continue research on atomic fission and to keep her knowledge to herself—or, at any rate, away from those who might conceivably misuse it. The Tube Alloys Direc-

torate, the camouflaged name for the organization of British scientists who had shared in development of the bomb, was transferred in November from the Department of Scientific and Industrial Research to the Ministry of Supply and continued experimental work near Didcot, Berkshire, 53 miles southwest of London. In the House of Commons on November 7 Winston Churchill, as leader of the Opposition, and Foreign Secretary Bevin, endorsing President Truman's Navy Day speech on the 12 fundamental points of America's foreign policy, agreed that the three countries should keep the atom bomb secret until the United Nations Organization (UNO) had been so strengthened that it could be shared. This position was further emphasized when the British and Canadian prime ministers visited the president in Washington the following week; in a tripartite statement they announced that the secret would be withheld until "effective enforceable safeguards against its use for destructive purposes can be devised."

While in Washington, Clement Attlee addressed a joint session of Congress, telling its members that their country "stands out as the mightiest power on earth and yet America is a threat to no one" and explaining to them the aims of the British Labour Party, of which he was the spokesman. He also asserted that the UNO "must be an expression of the will of the common people in every country," and this theme he reiterated in the House of Commons on November 22, warning that the UNO will fail unless the nations "determine to establish between themselves such mutual confidence that war is unthinkable." Anthony Eden, speaking from the Opposition benches in the debate that followed, urged the abandonment of narrow ideas of national sovereignty, and the next day Ernest Bevin, Eden's successor in the foreign secretaryship, pledged British support of a directly elected world assembly as a step beyond the UNO. The first stage, however, was to organize the UNO, and in order to prepare for the first sessions of its General Assembly in January 1946, a preparatory commission representing 51 nations convened in London on Nov. 24, 1945. At that time, unquestionably, the world outlook was less promising than it had been after the First World War. In particular, London shared Washington's uneasiness at the unco-operative attitude of the Soviet Union, and every step which could be taken to ensure wider collaboration among all nations was certain of maximum support by Great Britain. In fundamentals, British objectives were identical with those of the United States—and the two countries called upon others, as Ernest Bevin expressed it, "to really put the cards on the table face upwards."

WHEELER B. PRESTON,
Author and Publicist.

GREECE. This southeastern European country has an area of 50,147 square miles and a prewar population estimated at 7,535,000, considerably decimated during the war. It became an independent monarchy in 1830 after its liberation from Turkey. On March 25, 1924, a republican regime was proclaimed which lasted until the restoration of the monarchy in November 1935. In 1936 dictatorial powers were assumed by Premier Metaxas, and parliamentary government was suspended, though King George II remained on the throne. Italy invaded Greece through Albania on Oct. 28, 1940, but by April of the following year, the Greeks had driven the Italians back into Albania. Then Germany attacked Greece and, within a month, practically the entire country was in Axis hands. King George, having fled with his ministers, formed a government-in-exile headed by Emmanuel Tsouderos. In April 1944, following a controversy over the King's status, Tsouderos was succeeded by Themistocles Venizelos, who, shortly afterwards, was replaced by George Papandreou. In the fall of 1944 British forces landed on the Peloponnesus, and, in collaboration with Greek patriots, expelled the Nazis from the country. The king remained in London pending the results of a plebiscite, but the Papandreou government accompanied the British to Athens. No sooner was the cabinet installed than a civil war broke out between the ELAS, military arm of the leftist EAM, and the factions supporting the King and Papandreou. Soon the British, under General Scobie, joined the forces opposing ELAS and fierce fighting broke out in the streets of Athens. On Christmas Day, Prime Minister Churchill and Foreign Secretary Eden flew to Athens in an effort to resolve the crisis. Upon their return to London, they prevailed upon the Greek king to nominate Archbishop Damaskinos, primate of Greece, as regent.

Principal Events in 1945.—Following the establishment of the regency, Premier Papandreou and the entire Cabinet resigned, and on January 3 the regent appointed Gen. Nicholas Plastiras as Prime Minister. Meanwhile the British had driven the ELAS forces out of Athens, but the fight continued north of Thebes. On January 11, a truce was concluded with General Scobie, providing for the cessation of hostilities, for the exchange of prisoners, and for the evacuation by ELAS of the east coast of Greece including Salonika, northern Peloponnesus, and most of the islands. The ELAS would not agree to freeing civilian hostages, although later they permitted the release of all but about 100 "quislings." On January 12 the EAM, under British pressure, signed an accord with the Plastiras government at Varkiza, providing for the disarming of ELAS forces, the legal recognition of EAM as a political party, a plebiscite on the monarchy, a general election, immediate prosecution of Axis collaborationists, and an amnesty to all political offenders, excluding persons guilty of civil crimes. Having thus weakened the ELAS as a militant factor in Greek affairs, pressure now developed to force Plastiras out of office. He was accused of ruling like a dictator; actually he was opposed by the royalists who saw in the incumbent premier an obstacle to the return of the king. Eventually Plastiras gave way to a "service" government headed by the royalist sympathizer, Vice Admiral Petros Voulgaris. The advent of the new government failed to bring about political or economic stability, however. Protests were voiced over the government's repressive measures and its failure to effectuate the Varkiza agreement, and strong partisan differences developed between the royalist factions which asked for an immediate plebiscite for the return of the king, and the opposition which insisted that general elections should precede the plebiscite. In July, several ministers left the Cabinet, explaining that the time had come for the reorganization of the government along more democratic lines. On the economic front, the country experienced a new wave of inflation and currency depreciation, notwithstanding the efforts of Deputy Prime Minister Kyriakos Varvaressos to institute rationing, price controls and a special levy on wealth.

Greece also experienced difficulties in its relations with its neighbors. Marshal Tito and the Bulgarian government issued excoriating statements against the Greek government for alleged persecution of the Slavic minority in Greek Macedonia. These charges were officially denied by the British and Greek governments, which saw in the agitation among the Slavs a mere attempt on the part of Tito and the Bulgars to justify their designs on Greek territory. The Soviet's seeming acquiescence to these designs further complicated the situation.

The advent of Labor to power in Great Britain did not materially alter the Churchill policy toward Greece, Foreign Secretary Ernest Bevin declaring himself in support of the Voulgaris government and of the British policing of Greece. At British suggestion, however, the Greek government issued a decree (characterized as mockery by Moscow), granting general amnesty to political offenders, except persons charged with felonies. The British also expressed preference for the postponement of the plebiscite until after the general elections. In August, the U.S. State Department announced that the United States, Great Britain and France were to send commissioners to Greece to supervise the elections. The Soviet Union declined to join. In the fall, Archbishop Damaskinos arrived in London to consult with the British and to present reparation and territorial claims to the Council of Foreign Ministers. The council experienced a deadlock and adjourned, however, without reaching any accord on Balkan problems.

On October 9, Premier Petros Voulgaris and his cabinet resigned, forced by the refusal of the Liberal Party to participate in the elections set for January 20, 1946. After repeated unsuccessful attempts on the part of Archbishop Damaskinos, Regent of Greece, to find a successor to Voulgaris, the Regent announced, on October 17, that he himself was assuming, temporarily, the office of head of the government, and proceeded to form a new cabinet consisting of the members of the previous cabinet, excluding Voulgaris. This was the first time in Greek history that a clergyman headed a cabinet.

Production, Trade and Finance.—Agriculture normally employs 60 per cent of the population and contributes over two thirds of the national income. Less than one fifth of the country's area is arable. The crops most suited to Greek soil and climate are olives, grapes, and their derivatives (olive oil, wine, currants, and raisins), citrus fruits and nuts, and, most important of all, tobacco. Two thirds of the cultivated area is sown to cereals, chiefly wheat. Before the war, Greece manufactured textiles in very considerable quantities, leather goods, foods, liquor, chemicals, paper, and cigarettes. It also produced bauxite, chromium, iron ore, lignite, magnesite, nickel, and pyrites. Its exports—consisting chiefly of tobacco leaf, currants, raisins, and olive oil, and destined primarily for Germany, the United States and the United Kingdom—amounted to about 75 million United States dollars. Imports—comprising manufactures, cereals and fuels, and shipped mainly from Germany, the United Kingdom, and the United States—amounted to about 100 million United States dollars. A well-developed banking system operated the Bank of Greece, 27 commercial banks with numerous branches, 2 mortgage banks, the Agrarian Bank and a number of savings institutions. The nation owed an enormous foreign debt, held mostly by British investors, in default for a number of years because of difficulties in making the transfer. The total railway mileage in operation was 1,818 miles and the Greek merchant marine ranked ninth in world tonnage with a gross displacement of 1,837,000 tons. Greece also had 8,440 miles of highways, 14,976 miles of telegraph lines, 7,500 miles of telephone lines and 13 airfields.

The Aftermath of the War.—After the Axis occupation of Greece, the country's best tobacco lands were annexed by Bulgaria (restored in 1944), and agricultural productivity in general fell to one half of its prewar levels. Manufacturing also suffered heavily from lack of raw materials, fuels, and the removal of machinery by the Axis. In fact, all movable goods, ships, railroad stock, food, and equipment were systematically plundered by the Nazis and most of the ships that escaped were sunk by Axis submarines. Official reports indicate that 1,500 villages were wiped out, that 500,000 Greeks were slain or died of privation, and that fully 30 per cent of the nation's wealth was destroyed. Foreign trade, except for goods going to Germany, disappeared. The Germans took control of the banks, imposed fantastic levies to defray occupation costs, and flooded the country with worthless paper money.

In 1945 Greek economic life was still in a state of paralysis. Although official figures are still lacking, agricultural production was estimated far below its prewar level due to a severe drought and to shortage of supplies. It was expected, however, that soon tobacco culture would be restored to normal production. Such industrial plants as had escaped destruction were idle for lack of materials, industrial unemployment was widespread, and the relief measures undertaken by the UNRRA were handicapped by the complete breakdown of the transportation system. As a result, serious malnutrition still prevailed and infant mortality was reported high. The new drachma was first pegged at its value in 1940 (about 150 to the U.S. dollar) and later at 500 to the U.S. dollar. Twelve billion new drachma are reported to have been issued, backed by ample gold; but shattered public confidence, political instability, and widespread social unrest, threatened a new and disastrous inflation, with prices rising and the gold sovereign reaching 28,000 drachmas in the black market. Relief by the UNRRA, envisaging the distribution of $245,000,000 worth of food and supplies in 1945, and the extension of a $250,000,000 loan by the United States, will, it is hoped, bring a measure of recovery to Greek economic life.

HOMER P. BALABANIS,
Humboldt State College, Arcata, Calif.

GREENLAND. Largest island in the world and only colony of Denmark (q.v.), with an area of 736,518 square miles, of which only 31,284 are ice-free land; estimated population in 1940, about 18,000, including some 600 Danes and about 250 Eskimos. It is divided into three districts, North, South, and East. The capital is Godthaab (pop. 1939, 1,300). In 1932 Norway occupied and laid claim to a portion of East Greenland. Denmark protested to the Hague Tribunal, which decided in favor of Denmark, and Norway abandoned the settlement. The trade of Greenland is a state monopoly of Denmark. After the German occupation of Denmark in 1940, trade activities were carried on by the Greenland section of the Danish Consulate General in New York. Apart from cryolite (a

mineral used in the manufacture of aluminum, of which Greenland possesses the only existing mine), the chief products are seals and seal skins, blue and white fox skins, fish and animal oils. In 1944 Greenland exported 3,450 blue fox skins (of which 460 were grown on farms), 1,732 white fox skins (including 5 grown on farms), and one-half ton of cleaned eider down. During the fiscal year, April 1, 1944, to March 31, 1945, Greenland exported 3.1 tons of cod liver oil, 162 tons of cod livers, and 1.7 tons of shark livers.

From April 9, 1941, under an agreement with the Danish minister at Washington, Greenland was placed under the protection of the United States, which acquired the right to establish American air bases and other naval and military facilities, on the understanding, however, that Greenland would remain a Danish colony. On May 5, 1944, it was announced that American air bases begun in 1941 had been completed. Greenland thus became an important link in the chain of air highways encircling the globe.

On June 26, 1945, Denmark's sea communications with Greenland were re-opened with the reported departure from Copenhagen of a schooner carrying a mixed cargo. The first passenger ship, with a group of explorers, artists, and scientists, and a number of Greenlanders returning to their native country after an enforced five-year stay in Europe, was scheduled to leave a few days later.

GREENWOOD, Arthur, British political leader, and since labour's victory in Britain's 1945 general election, lord privy seal in the Attlee Cabinet. He has been deputy leader and acting chairman of the Labour Party since 1942, and treasurer since 1943; he is also secretary of the party's research and information department. From 1940–42, he served in the Churchill War Cabinet as minister without portfolio. He is one of the Labour Party's most popular members, a scholar and an organizer of educational programs for members of Britain's working classes. He was minister of health, 1929–31. Mr. Greenwood is author of a number of books, among them *The Labour Outlook* (1929), and *Why We Fight: Labour's Case* (1940).

GREIM, Robert Ritter von, German Army officer: d. Salzburg, Austria, May 24, 1945. Field Marshal von Greim was successor to Hermann Göring as head of the German Luftwaffe. Wounded in the leg during the final stages of the battle for Berlin, he was discovered in the Luftwaffe hospital in Kitzbühel, Germany, on May 22, 1945, and two days later committed suicide. It is believed that he took the same type of poison as the Gestapo chief, Heinrich Himmler.

GRENADA AND GRENADINES. See WINDWARD ISLANDS.

GROUP INSURANCE. Group insurance has continued to grow in popularity and in the variety of its coverages. The following chart shows the number of master policies, number of certificates issued to individuals, and the total volume in force in the several classifications of life, casualty and annuity business as of Dec. 31, 1944, the latest date for which figures are available.

GROUP INSURANCE IN FORCE IN THE UNITED STATES AND CANADA AS OF DEC. 31, 1944

	Number of Master Policies	Number of Certificates	Volume in Force
Group Life Insurance (including Group Indebtedness Insurance)	38,500	15,300,000	$25,600,000,000
Group Accident and Sickness Insurance	18,600	6,500,000	$ 105,600,000 (Weekly Indemnity)
Group Accidental Death and Dismemberment Insurance	14,500	3,200,000	$ 5,250,000,000 (Principal Sum)
Group Hospital Expense Insurance and Surgical Benefits for employees and their dependents:			
Daily Room and Board Benefits			
For Employees	18,000	4,900,000	$ 21,700,000
For Dependents	8,700	1,400,000 (Family Units)	5,300,000
Surgical Benefits			
For Employees	17,600	4,300,000	$ 641,000,000
For Dependents	2,400	530,000 (Family Units)	$ 67,700,000 (Maximum Benefits)
Group Annuities	2,033	1,450,000	$ 277,660,000 (Annual Income at Maturity)

These figures show a new high record of volume in force for each classification listed with the exception of group accident and sickness insurance.

Group Accident and Sickness Insurance.—The number of lives covered under group accident and sickness insurance policies has been maintained at 6,500,000 but the amount of weekly indemnity has been reduced about $1,400,000. This reduction in volume of a little over 1 per cent over approximately the same number of lives covered reflects in part the efforts of the insurance carriers to keep the amount of weekly indemnity in conformity with the basic weekly earnings rather than to increase the indemnity to match up with higher earnings caused by payment of overtime pay, bonuses, etc. A corrective for the loss ratio on accident and sickness insurance was in order since this one division of group insurance was showing more than an expected loss ratio.

Loss Ratio.—The loss ratios on all forms of group insurance other than accident and sickness have all been satisfactory and large credits have been allowed on these policies in the form of dividend returns and rate reductions.

Group Medical Reimbursement Insurance.—During the past year expansion of group insurance has appeared in the form of medical reimbursement insurance, a plan designed to reimburse the individual employee for modest medical fees such as $2 for a visit to the doctor's office or at a hospital and $3 for the doctor's visit to the home. A recent enlargement of this feature has been the extension of these benefits to the dependents of employees to include wife and children between the ages of three months and 18 years. There is a limitation to the number of calls, usually 50 calls in a calendar year.

Surgical Reimbursement Insurance.—As a result of increased experience in this new group field

some policies were introduced in 1945 providing for a scale of increased benefits at correspondingly higher premiums.

Group Life Insurance.—Bills for the legal extension of group life insurance benefits to provide some death benefit for the dependents of the insured employee have appeared in a few legislatures and enacted into law by one, California, in its 1945 session. The statutory minimum of 50 lives has been reduced to 25 in a few states and the definition of group insurance has been amended to apply more broadly to cover certain types of groups. These enlargements in statutory privileges, however, leave the question with the underwriters as to what would be deemed desirable in the way of further reduction in the minimum number of lives accepted under group underwriting rules. Admittedly it is desirable to cover employees of small concerns but the question of accepting lives without medical examination introduces other underwriting considerations which thus far have limited the inclusion of groups of under fifty. An intermediate form of individual insurance is available with some companies for groups over 10 but under 50 lives in the form of wholesale insurance where the selection of the lives is on a modified medical examination.

Group Indebtedness Insurance.—Group indebtedness insurance to date has largely been utilized by banks to insure unpaid installments on their personal loan business but this coverage now is leading more broadly into the field of installment buying, opening up another avenue of group business offering possibilities of broad development.

Group Ordinary Insurance.—Interest in applying plans of group insurance on other than the one year term rate continues, but outside of pension trust business there has not been any considerable volume of such insurance written.

Group Annuities.—The great growth in group annuity plans reflects both the need and desire of insured benefits to supplement social security benefits and also reflects the increasing popularity of pension plans underwritten by insurance companies.

WILLIAM J. GRAHAM,
Vice President, Equitable Life Assurance Society of the United States.

GUADALCANAL. See WESTERN PACIFIC ISLANDS, BRITISH, Section 1.

GUADELOUPE. A French colony in the Lesser Antilles, West Indies, consisting of the two islands, Guadeloupe proper and Grande Terre, separated by a narrow channel called Rivière Salée. The area is 583 square miles and the population (1936) 304,239. Five smaller islands attached to the colony make the total area 688 square miles. The inhabitants are French citizens. Guadeloupe, like Martinique, sends two deputies and one senator to the French Parliament. Guadeloupe is administered locally by a governor and an elected general council, the seat of government being Basse Terre (pop. 13,638), on Guadeloupe Island. The general council and the municipalities (36 communes) are of the French type. Education is provided by two lycées, and a secondary course for girls, and 129 public and private elementary schools, with 22,817 pupils. Bananas, tobacco, and most of the native vegetables are grown in large quantities, and cattle are produced in sufficient numbers to provide a regular meat ration for the whole population. In 1938 imports amounted to 250,583,000 francs, exports to 296,472,000 francs. In May 1945 Guadeloupe, Grand Terre, and the island of Marie Galante were reported to have a total of 1,189 kilometers of roads, of which 309 kilometers were all-weather roads. In 1938 the colony had 59 post offices and 9 wireless stations. The Bank of Guadeloupe is the official banking institution, but the Royal Bank of Canada also has established a branch in the colony. In November 1944 the general council adopted a loan in support of an extensive program of public works, begun in 1931, calling in its revised form for an expenditure of 240,000,000 francs. Work on this program, which was resumed in 1944, and continued in 1945, includes modernization of the port of Pointe-à-Pitre on Grande Terre (pop. 44,551), construction or repair of roads and bridges, electric power lines, and public buildings, and reclamation of 450,000 square meters of flood lands. In the budget for 1945, receipts and expenditures balanced at 199,377,000 francs, as compared with 137,966,000 francs for 1944. (In August-September 1945, 1 franc equaled about 2 cents in U.S. money.) Expenditures for public works amounted in 1945 to 10,000,000 francs, as compared with 7,300,000 francs in 1944.

GUAM. Largest and most southerly island of the Mariana Archipelago in the mid-Pacific, ceded by Spain to the United States Dec. 10, 1898, and subsequently a United States naval station. It was captured by the Japanese, Dec. 7–12, 1941, retaken by United States forces, July 21–Aug. 9, 1944 (the first United States possession retaken by her forces in the Second World War), and during 1945 figured as advance headquarters United States Pacific Fleet and Pacific Ocean areas.

Guam is 30 miles long and 4 to 8½ miles wide, with an area of about 225 square miles. It is 1,501 miles east of Manila and 1,353 miles south of Yokohama. In 1941 the total population was 23,394, of whom 21,999 were classified as native, the remainder comprising naval personnel and non-native civilians. The Guamians (Chamorros), of whom 95 per cent are Roman Catholics, have Chamorro as their native language, using also some Spanish and English, the last-named being the official language. Before the Japanese invasion 4,953 pupils were registered in the schools, elementary education being compulsory. The island was governed by a naval officer, a presidential appointee, who was also head of the military forces and of the naval station, and had its own courts. Agaña, the chief city and seat of government, had in 1941 a population of 12,553. Port Apra, 8 miles distant, was the main anchorage. The island normally produces a wide variety of grains and fruits as well as tobacco, cassava, sugar cane, and valuable woods, and before the Japanese invasion had 7,718 head of cattle.

During the period of Japanese occupation many of the inhabitants were forced into slave labor. Their schools were closed, or reduced to labor-recruiting centers, their food supplies confiscated. By the time of the return of the United States forces thousands of the Guamians, fearing massacre by the Japanese, had taken to the woods, and were facing death from starvation and disease. Agaña, their chief town, was almost completely destroyed during the naval bombardment which preceded the invasion by the United States forces. Within a year after July 21, 1944, when the Americans had established their first

beachheads on the island, great strides had been taken toward rehabilitating the population.

Intensive construction activities of the armed services, moreover, had been transforming Guam into one of the most powerful of advanced bases. The island now had a ring of coast defense artillery, hundreds of antiaircraft guns, a unique system of communications, and eight large air bases. Port Apra, in respect to the volume of cargo handled, had become the world's leading advanced port area. Space for huge battle and transport fleets had been obtained by removing from the harbor about 6,000,000 cubic yards of coral. Transport vehicles in use on the 150 miles of new or improved highways included 3,600 jeeps, and 28,000 trucks, with 3,000 trailers (some of 40- to 60-ton capacity), in addition to heavy traction and trans-shipment machinery. The water supply system was delivering 10,000,000 gallons a day for current needs, with an additional quota of 30,000,000 gallons a month to the harbor and the fleet, and was to be developed to a daily capacity of 60,000,000 gallons. Each month about 15,000,000 gallons of aviation gasoline were being pumped by tankers through 51 miles of pipelines to the airfields, one of which alone required 700,000 gallons each day. The hospitals, all begun since July 1944, already had accommodation for 11,819 cases, which was to be increased to 13,200, with a personnel of 6,100 men and women. A Naval Medical Research Unit, held by naval authorities to be the only one of its kind, with a staff of 44 officer-scientists, was working on the task of preventing as well as curing disease in the Pacific area. Guam also had two large radio stations, a short-wave station in direct contact with San Francisco, and a local station (linked with the Pacific Ocean network) which provided music and other entertainment for the thousands of troops stationed on the island. See also JAPANESE SOUTH SEA ISLANDS—*Marianas Islands;* WORLD WAR, SECOND.

GUATEMALA. The northernmost Central American republic, with an area of 48,290 square miles and an estimated population (1943) of 3,450,732, of which almost 60 per cent are full-blooded Indians and practically all of the rest mixed Indian and white; the percentage of pure whites is very small. Guatemala was the leading province of the Spanish colonial captaincy general of that name and its capital, Guatemala City (pop., 201,430) became the seat of government of the Central American confederation, 1823–38. The province became an independent state in 1839. The constitution of 1879, frequently amended, prevailed until the adoption of a new constitution, March 11, 1945. The new law provides for a president to serve a six-year term and be ineligible for 12 years thereafter, a council of ministers of state under partial responsibility to the congress, a unicameral legislature, and a judiciary headed by the Supreme Court of Justice, members of which are chosen by the congress. The constitution contains an extensive bill of rights and seeks by elaborate provisions to prevent a return of presidential domination. In addition to the capital city, other important cities with the latest estimates of population are: Puerto Barrios (15,784), Quezaltenango (47,822), Cobán (45,228), and Zacapa (53,262).

Religion and Education.—Roman Catholicism is the predominant form of worship but complete religious liberty has prevailed for many years.

Educational statistics for 1943 (the latest available) showed 2,520 primary schools with an enrolment of 140,736; 69 intermediate schools with an enrolment of 6,552; and one university (at Guatemala City) with an enrolment of 594; there are also various normal, commercial, and vocational schools. The revolutionary junta which came into power in October 1944 and continued in office until the inauguration of President Arévalo in March, 1945, adopted a comprehensive law early in the latter month, providing for a four- to six-year campaign against illiteracy. The program is based on that recently adopted in Mexico and established a scheme of awards of merit and also penalties for noncompliance.

Communications.—The total railway mileage is 737, much the largest portion of that being operated by the American-controlled IRCA (International Railways of Central America), providing connections between the capital and Puerto Barrios, the Caribbean port, and also with El Salvador. Highway mileage totals 3,882; the new administration has made appropriations for improving portions of the Pan American Highway and also for construction of utility roads in the Petén region to open important mahogany-producing areas for exploitation. Guatemala has 235 telegraph offices with 4,079 miles of line, and 2,327 telephones. Air mail and passenger services connect Guatemala with Mexico and the United States to the north and with other Central and South American countries to the south. Chief aviation companies are Pan American Airways, which by September 1945 was operating 56 weekly flights between Guatemala City and Panama, and TACA (Transportes Aéreos de Centro América). Automotive vehicle registration in 1943 was 4,338; there were an estimated 40,000 radio sets and a newspaper circulation of 25,000.

Production.—Guatemala, primarily an agricultural country, has as its chief crops corn (almost entirely for local consumption), coffee, bananas, sugar cane, chicle, and cacao; also important in the local diet are beans, rice, and potatoes. Until the outbreak of the Second World War, bananas and coffee were more or less on a par in value of exports, but lack of shipping facilities has since that time put coffee, at least temporarily, far in the lead. Estimates of coffee production during the 1944–45 season (October through September) were 996,666 bags of 60 kilograms; production in the 1943–44 season was 985,210 bags; exports from October 1944, through April 1945, were 418,686 bags, a decline of 20.8 per cent from figures for the corresponding period in 1943–44. Most exported coffee goes to the United States and under the Inter-American Coffee Agreement, Guatemala's basic quota is 535,000 bags of 60 kilos. This figure has been increased for the 1944–45 season to 754,206 bags. In the 1943–44 season the final quota was 705,248 bags, of which 698,325 bags went to the United States; this figure equaled 4 per cent of all United States coffee imports. United States coffee imports from Guatemala have consistently exceeded the basic quota in recent years, the figures being: 1943–44, 130.53 per cent; 1942–43, 151.47 per cent; 1941–42, 131.21 per cent. Most of the coffee is grown at an intermediate altitude. Banana exports in 1944 totaled 4,495,078 stems, a great increase from the figure for 1943 (2,664,314 stems), due chiefly to the improvement in the shipping situation. Banana exports in 1940 reached 8,208,517 stems. Exports of chicle, used as a base for chewing gum, totaled 3,480,295 pounds in 1944, a slight increase from the 3,335,823 pounds exported in 1943. All of the chicle

goes to the United States, the greater part of it being produced in the Petén region in northern Guatemala. The northern portion of the country is also the principal timber-producing region, the leading woods being mahogany and cedar. Production of the former in particular has been stepped up because of wartime demands from the United States. Small quantities of rubber were produced in the war years and both the government and the United Fruit Company have taken steps to promote plantation production of rubber. Mineral production is far less important than agricultural production. Salt, one of the principal items, is used almost entirely locally. The government on April 1, 1945, abolished its monopoly on the refining and sale of salt. Conditions governing agricultural and mineral production in 1945 were largely shaped by wartime factors; prices of even the foods produced locally for domestic consumption were increased greatly because of shortages of trucks and tires that interfered with normal distribution. Climatic and other factors also played important parts: a drouth in the early months of 1945 caused shortages of corn, beans, and rice and resulted in speculation in sugar and salt. Serious forest fires in northern Guatemala caused great damage in lumbering areas. Industrial production in Guatemala is relatively unimportant, the chief items being shoes and cotton textiles, cement, soap, processed tobacco products, and furniture. Industrialization has been retarded, especially in the war years, by the inability to get needed raw materials, machinery, and fuels from the United States. According to an industrial census in 1940, the largest number of employes (37,361) was found in food-processing industries and the next largest number (29,830) in the textile industry.

Finances.—Budget expenditures for the year ended June 30, 1945, were increased by 2,175,938 quetzales (quetzal = $1.00), bringing the total to Q15,257,452; the principal items of expenditure in that fiscal year were for roads, public health, sanitation, and defense. Preliminary estimates of expenditures under the 1945–46 budget were for Q20,801,500 but the budget bill as introduced in the congress called for Q25,412,216; the amount for highways, health, and education represented approximately a Q4,000,000 increase, while the Roosevelt Hospital in Guatemala had an item of about Q1,700,000.

Principal Events.—The year 1945 opened with the revolutionary junta of Jorge Toriello, Maj. Francisco Javier Arana, and Capt. Jacobo Arbenz, who had led the bloody revolution against the provisional government on Oct. 20, 1944, still in power. The junta was preparing to surrender power, following the adoption of a new constitution, to the recently elected President, Dr. Juan José Arévalo, who had been successful in the elections of Dec. 17-19, 1944, with a vote of 256,514 to 20,550 for ex-Ambassador Adrián Recinos, the next highest candidate. The constituent assembly began its sessions Jan. 10, 1945, and completed its work in time for the scheduled inauguration of Dr. Arévalo on March 15. The government on January 23 demanded return by former President Jorge Ubico of a "bonus" of $200,000 paid him by the National Assembly in 1940, and later raised its demands to $587,000. Ubico, failing to take action with the 30 days granted him, subsequently faced confiscation of his holdings in Guatemala by the government. Eight opposition leaders, including officials of Recinos' Democratic Party, were arrested February 11 on charges of conspiracy and Recinos was "invited" to leave the country. President Arévalo, after his inauguration, named three former members of the revolutionary cabinet to his own cabinet and appointed Junta Member Capt. Arbenz as war minister; the cabinet had been reorganized at the end of 1944 to provide for ministries of Economy and Public Health and Social Aid. Jorge Toriello, another junta member, subsequently became Finance Minister. In April 1945, less than a month after Arévalo's inauguration, constitutional guarantees were suspended because of a "reactionary conspiracy" and developments later in the year indicated that the government was taking an increasingly repressive attitude toward opposition elements; numerous persons were exiled in June and July. The government in mid-1945 extended invitations to the other Central American states to attend a Regional Radio Communications Conference to be held at Guatemala City in August, preliminary to the scheduled meeting of the Third Inter-American Radio Communications Conference at Rio de Janeiro in September. The government on Feb. 21, 1945, expropriated Aerovías de Guatemala, a subsidiary of Pan American Airways; this was later reorganized on a national basis. Other nationalistic and similar legislation and actions followed. The government in May began preparation of a comprehensive labor code and also of laws favoring co-operatives and speeding industrialization. A law, effective May 22, 1945, revised regulations dealing with agricultural labor. An Office of Co-ordination of Prices and Supplies was established July 1 to attempt to combat inflationary tendencies.

In the field of foreign relations, probably the most significant development was the changing relations with Spain. On Jan. 23, 1945, the revolutionary junta severed diplomatic relations with the Franco regime; it was thus the first American state to take such action (Mexico had never established relations with Franco). Guatemala subsequently, September 10, granted recognition to the Spanish "government-in-exile" established at Mexico City. The Guatemalan delegation at the Mexico City Conference proposed on February 28 that "undemocratic" regimes be not recognized. Relations with El Salvador, which, under the revolutionary junta, had been quite strained, were smoothed out after recognition by Guatemala of the new regime in El Salvador in April, and soon thereafter the two new presidents began discussions looking to the union of the two states as a forerunner to Central American union. Guatemalan relations with the Soviet Union were re-established by an exchange of notes at Washington, April 19. The new Guatemalan government continued to press the long-standing claim against Great Britain for the return of British Honduras. President Roosevelt on January 22 nominated Edwin J. Kyle of Texas as ambassador to Guatemala; he presented his credentials May 9. On May 21, officials of the two governments signed at Washington an agreement for a United States military mission to Guatemala. Later conversations discussed the "loan" of U.S. price control, statistical, mineral, industrial, and other experts.

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GUATEMALA-EL SALVADOR UNION. The presidents of Guatemala and El Salvador are reported to have met in June 1945 to discuss a proposal of political union of the two countries. Federations among the Central American nations

are no novelty, as the National Geographic Society points out in a bulletin commenting on the report. All these nations—with the exception of Panama which was part of the Spanish viceroyalty of New Granada and subsequently a province of Colombia until 1903—were originally provinces in the captaincy-general of Guatemala established after the conquest of 1523–24 made by Cortes' lieutenant, Pedro de Alvarado. On Sept. 15, 1821, El Salvador, Guatemala, Honduras, Nicaragua, and Costa Rica jointly proclaimed their independence from Spain and the following year annexed themselves to the short-lived Mexican Empire of Agustín de Iturbide. However, when the emperor-dictator abdicated, they withdrew and, on July 1, 1823, organized the United Provinces of Central America from which Guatemala did not formally secede until almost a year later. Subsequently, between 1839 and 1851, El Salvador was involved in several bitter conflicts with Guatemala in the attempt to re-establish the union.

Though El Salvador, with an area of 13,176 square miles, is the smallest of these republics, it is the most densely populated, its nearly 1,900,000 inhabitants living in an area less than half the size of the state of Maine; it is also the only one of the six that faces but one ocean, the Pacific. Guatemala, on the other hand, with its area of 48,290 square miles (about the size of New York) is one of the three larger states, its population of nearly 3,500,000 giving it more citizens than any of the others.

Coffee comprises about four-fifths of El Salvador's exports, and there is an increasing production of medicinal gum from balsam trees. Guatemala's leading crop is also coffee; but during the war years there has been increased planting of rubber and cinchona trees, with consequent stimulation of exports of rubber and quinine. Both countries, in common with their sister republics of Central America, having an agricultural economy, are endeavoring to develop local industries and create an export market in the United States for their beautiful hand-woven and embroidered textiles.

GUERNSEY. See CHANNEL ISLANDS.

GUGGENHEIM MEMORIAL FOUNDATION. The John Simon Guggenheim Memorial Foundation was established in 1925 by former United States Senator and Mrs. Simon Guggenheim as a memorial to their son, the object being "to improve the quality of education and the practice of the arts and professions in the United States, to foster research, and to provide for the cause of better international understanding." The foundation has headquarters at 551 Fifth Avenue, New York City. Henry Allen Moe is secretary general.

Fellowships are distributed by the foundation annually in the fields of literature, fine arts (painting and sculpture), music and dance, science, history, philosophy, and economics, the stipends usually being $2,500 a year. A total of 132 fellowships, involving stipends amounting to $324,000, was awarded to Americans and Canadians in 1945, and it was announced that $200,000 had again been appropriated, as in 1944, exclusively for men and women serving the nation in the war effort. The winners in this category began their fellowship work at the time of their discharge from war service. Of the 132 award winners in 1945, 77 were in the category of war service winners.

In addition, 21 fellowships were awarded to Latin American scholars and artists, whose stipends are usually $2,000, plus sums for traveling expenses to the United States and return home. Of the 21 Latin American scholarships, seven were awarded to Argentinians, six to Mexicans, three to Uruguayans, two to Chileans, two to Cubans, and one to a Brazilian.

GUINEA, French. See FRENCH WEST AFRICA.

GUINEA, Portuguese. See PORTUGUESE COLONIAL EMPIRE.

GUINEA, Spanish. See SPANISH COLONIAL EMPIRE.

GYPSUM. Continued impediments to construction resulted in a 3 per cent decrease in crude gypsum mined in the United States in 1944 compared with 1943, according to the United States Bureau of Mines. The mine production of crude gypsum for 1944 was 3,761,234 short tons valued at $6,450,767, as compared with 3,877,541 tons valued at $5,959,615 in 1943. The 1944 calcined gypsum output was 8 per cent lower than in 1943. The production of calcined gypsum in 1944 was 2,363,143 short tons valued at $13,841,399 as compared with 2,557,730 tons valued at $14,751,587 in 1943. Uncalcined gypsum products sold or used in 1944 amounted to 1,056,276 short tons valued at $2,953,564, while 200,473 short tons of industrial gypsum products valued at $2,550,649 were sold or used during the same period. Building gypsum products sold or used during 1944 amounted to 753,945 short tons valued at $7,338,740, while 1,828,029 short tons of prefabricated gypsum products valued at $42,857,266 were sold or used during the same year.

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HACHA, Emil, Czech jurist and statesman: b. Trhove Sviny, Bohemia (then a part of Austria-Hungary), 1872; d. Prague, Czechoslovakia, June 27, 1945. President of Czechoslovakia from November 1938 to March 1939, and thereafter puppet president of the German "protectorate" of Bohemia and Moravia, Emil Hácha had been arrested by Czech patriots on May 5, 1945, and at the time of his death was awaiting trial on charges of traitorous collaboration.

After receiving the degree of doctor of jurisprudence at Charles University, Prague, in 1895, Dr. Hácha practiced law for three years and then entered the Austrian state service. He served as legal adviser of the Land Committee of the kingdom of Bohemia (1898–1916) and as legal counselor to the Austrian Court of Administration in Vienna (1916–18). When the Republic of Czechoslovakia was established in 1918, he became Senate president of the Supreme High Court of Administration in Prague. From 1919 to 1925 he was second president of this same court, and from 1925 to 1938 first president, the highest judicial post in the country. In ad-

dition, he was also at one time a judge of the Permanent Court of International Justice at The Hague.

With the signing of the Munich agreement in September 1938 and the subsequent German occupation of the Sudetenland, Dr. Eduard Beneš resigned as president of Czechoslovakia in the face of German diplomatic pressure. The National Assembly was convoked on Nov. 30, 1938, and elected Dr. Hácha president by 272 out of 312 votes. Hácha was known as an undisguised reactionary, but he had never before participated in politics, and the electors hoped that he would have the innate respect of an international jurist for legal and constitutional forms. However, despite the conciliatory attitude of Hácha's government, the Nazis were not to be appeased and in March 1939 they instigated and supported the Slovak secession from Czechoslovakia. Hácha was summoned to Berlin, and after a four-hour conference with Hitler, during which Hácha was said to have fainted twice, he signed on March 15 a document which placed "the fate of the Czech people . . . trustingly in the hands of the Führer." Czechoslovakia's independence was thus brought to an end, Slovakia became a separate state, and Bohemia and Moravia a German protectorate. In recognition of his "co-operation," Dr. Hácha was named state president of the protectorate, but the real power rested in the hands of the *Reichsprotektor*. On March 21 Hácha dissolved Parliament and in its place appointed a Committee of National Co-ordination, composed of 50 men. When the Second World War was declared, he stated that Bohemia and Moravia would not participate in the conflict, but early in 1940 he expressed his hope for a German victory.

HADHRAMAUT. See ARABIA—*Aden* and *Aden Protectorate*.

HAITI. A republic occupying the western part of the island of the same name (also called Hispaniola, q.v.) in the Caribbean Sea. In the Carib language Haiti means "Mountain Land." It has an area of 10,204 square miles and a population of about 3,500,000, besides 3,000 foreign residents of the white race. Originally a French colony, Haiti proclaimed her independence on Jan. 1, 1804. From 1915 to 1936, by terms of a treaty with the United States, the president of Haiti was assisted by American advisers; their financial powers were transferred in September 1941 to the mixed council of administration of the National Bank which became the property of the Haitian state.

The constitution of 1935, amended in 1939, provides for the election of presidents for five-year terms by the National Assembly. The latter consists of 37 deputies elected for four years by popular vote and 21 senators appointed in part by the president and in part by the Chamber of Deputies.

President Elie Lescot, elected April 15, 1941, and assuming office on May 15 following for the term expiring May 15, 1946, received a new mandate in 1944 when the National Assembly amended the constitution to extend his term to 1951.

The capital in Port-au-Prince (population about 125,000). The other principal cities are Cap Haïtien (20,000), Aux Cayes (15,000), Gonaïves (20,000) and Port-de-Paix (5,000).

Religion and Education.—The predominant religion is the Roman Catholic. There are four bishops and an archbishop. The clergy are French (principally Bretons); but for some years past a number of Haitians have entered the priesthood, tending to the establishment of a national clergy. Recently a number of American and Canadian religious orders have come into the country.

There are 1,065 urban and rural public and private schools with approximately 90,000 pupils. Eight national academies for boys, an academy for girls established in 1943, and 15 private institutions provide secondary instruction for about 7,000 pupils. There are 77 farm schools for boys and girls with an enrolment of 12,200 pupils, and 11 professional schools with 1,713 pupils. Pedagogical training is offered by two normal schools. Higher instruction is provided for about 350 students by the National School of Law, the School of Applied Science, the Faculties of Medicine, Pharmacy and Dentistry, and the Central School of Agriculture. There is also a military school for the training of officers. The formation of new technical and professional groups has been aided by numerous scholarship students sent for training in the United States.

Production.—Agriculture is the principal resource of the country, and its products constitute the majority of the exports. Coffee is the most important commodity with a median production of 31,800,000 kilograms per year. Next comes cotton, fig bananas, sugar, sisal, cocoa and rice. Since the outbreak of the Second World War strategic products, notably sisal and rubber (Hevea and Cryptostegia), have been considerably developed, and they contributed importantly to the continental defense. By agreement with the United States 24,000 additional acres were planted in sisal and 100,000 acres in Cryptostegia. There are 105,000 head of cattle, 650,000 donkeys, 400,000 horses, 31,000 goats, and 350,000 swine. The mountains are rich in precious woods and the forest wealth is exploited systematically for internal consumption. The mineral wealth, not exploited, consists of gold, silver, copper, tin, iron, coal and lignite, antimony, sulphur, manganese and gypsum. Recent surveys have been made with a view to the exploitation of oil and bauxite deposits.

Native Industry.—One of the most interesting recent developments has been the growth of the handicraft industry, reflected in a notable increase of exports of manufactured goods. Among the items contributing to this expansion are straw and sisal hand-bags, mahogany ware (exports of which doubled in the fiscal year 1944–45), cane and coconut straw braid, and straw and sisal shoes and slippers. The following table shows Haitian handicraft exports for the first ten months of the 1944–45 fiscal year compared with those for the corresponding period of the previous fiscal year:

	Oct. 1944–July 1945 value, gourdes	Oct. 1943–July 1944 value, gourdes
Mahogany ware	1,879,686	734,307
Straw hand-bags	245,948	239,591
Sisal hand-bags	1,531,495	1,155,787
Straw shoes and slippers	395,858	5,604
Sisal shoes and slippers	495,519	18,608
Cane and coconut straw braids	584,298	260,489
Total	5,132,804	2,414,386

Foreign Trade.—Since the beginning of the war Haitian commerce has been almost exclusively with the United States. During the 10-month period of October 1944 to July 1945 imports were valued at 55,696,272 gourdes (1 gourde = $0.20 in U.S. currency), as compared

with the corresponding period of the preceding year when imports were 67,254,564 gourdes. In the same 1944–45 period exports amounted to 73,570,742 gourdes, as compared with the preceding year's 69,418,848 gourdes. The favorable trade balance for the 1944–45 period, of 17,874,470 gourdes, was due in part to a diminution of imports combined with higher prices obtained for exports. Another cause was the export item of 5,132,804 gourdes representing products of the light industries established since the beginning of the war. An additional factor was an increase in production of fig bananas and sisal.

During the same 10-month period (October 1944 to July 1945) 26,619,223 kilograms of coffee valued at 32,191,064 gourdes were exported, compared with 20,810,999 kilograms valued at 23,360,950 gourdes in the corresponding 1943–44 period. Fig bananas exported in the 10-month period ending July 31, 1945, amounted to 3,193,875 stems valued at 9,972,765 gourdes, an increase of 50 per cent in volume and 76 per cent in value over the corresponding previous period. This increase was the more remarkable since in July 1944 more than a million stems were destroyed on the limb by a storm in the Artibonite Valley, thus considerably reducing the harvest.

Haitian sugar is normally exported to Britain and the European continent. Exports for the ten months to July 31, 1945, amounting to 29,276,010 kilos, were less than half those for the corresponding previous period. Cotton exports also declined sharply, the export amounting to only 3,612,243 kilos valued at 2,043,129 gourdes, as compared with 9,053,783 kilos valued at 5,309,314 gourdes for the corresponding 1943–44 period.

Among other exported commodities, sisal deserves special mention. During the 10-month period to July 31, 1945, 7,101,086 kilos valued at 6,535,099 gourdes were shipped, as compared with 7,080,827 kilos valued at 6,524,922 gourdes exported in the analogous prior period. Of Haiti's total commerce during the first ten months of the fiscal year 1944–45, 82.81 per cent of imports were from the United States, while 76.63 per cent of exports went to the United States.

Finances.—Total receipts during the first ten months of the fiscal year to July 31, 1945, amounted to 36,567,000 gourdes, or 125,000 gourdes more than during the corresponding previous period. For the same period customs receipts amounted to 26,363,000 gourdes, which was 70,000 gourdes more than for the corresponding previous period. Total internal revenue for the period was 9,477,000 gourdes, which exceeded the amount received in the preceding corresponding period by 150,000 gourdes.

Expenditures from revenue for the 10-month period to July 31, 1945, amounted to 31,425,000 gourdes which was 775,000 gourdes above the expenditures for the corresponding prior period.

The public debt as of July 31, 1945, amounted to 56,936,000 gourdes, as compared with 64,961,000 gourdes on July 31, 1944, and 70,466,000 gourdes on July 31, 1943.

Communications.—There are 158 miles of railroads in the republic, all privately owned, 92 post offices, 1,500 miles of telegraph wire, and 46 commercial and 17 local exchanges with 1,200 miles of telephone wire. The vehicular roads have a total length of 1,300 miles and are steadily increasing. There are two wireless stations, one of which is official, and five radio broadcasting stations. The capital is connected by regular air service with Hinche, Cap Haïtien, Port-de-Paix, Mole St. Nicolas, Gonaïves, Jacmel, Aux Cayes and Jéremie. Nine other airfields facilitate communications between the capital and other parts of the country, being available for special flights. Tourist travel seems destined for considerable development in a country with an incomparable climate and some of the finest scenery in the western hemisphere. In the northern part of the island is the famous citadel LaFerrière, built by King Christophe in 1806 and considered one of the wonders of the new world.

HALSEY, Edwin A., secretary of the United States Senate: b. Fern Moss, Tye River, Nelson County, Va., 1881?; d. Washington, D.C. Jan. 29, 1945. One of the most popular figures on Capitol Hill, Colonel Halsey was elected secretary of the Senate in 1933, after serving in various capacities as an employee of the Senate for nearly half a century. Colonel Halsey attended the Locust Dale (Va.) Academy and Virginia Polytechnic Institute. In 1897, he came to the Senate as a page boy for his uncle, Senator John W. Daniel of Virginia. He was employed in the press gallery for 16 years, and in 1910 was appointed colonel on the staff of Governor William H. Mann of Virginia. In 1928, he was elected sergeant-at-arms of the Democratic National Committee, and served in that capacity during the national conventions of 1928, 1932, 1936 and 1940.

HALSEY, William Frederick, Jr., United States naval officer: b. Elizabeth, N.J., Oct. 30, 1882. From the early days of the Pacific war, when he directed defensive operations against the Japanese as a task force commander, Admiral Halsey was one of the navy's most valuable combat officers. As commander of the United States Third Fleet, he played a prominent role in General MacArthur's recovery of the Philippines, co-ordinating his forces with those of Admiral Thomas C. Kinkaid's Seventh Fleet to support the initial invasion of the islands in October 1944. On October 22-27, his Third, with Kinkaid's Seventh routed the Japanese Imperial Navy in the Battle of Leyte Gulf, sinking or damaging over 60 enemy warships. On Jan. 10, 1945, his fleet lent naval and air cover to forces invading Luzon, largest island of the Philippine group.

In the summer of 1945, Admiral Halsey returned to his Third Fleet command, after a period of shore duty, and on June 3, sent carrier aircraft against airfields on the Japanese home island of Kyushu. Between July 14 and August 14, when Japan capitulated to the Allies, his Third Fleet and a supporting British task force ranged Japanese home waters at will—bombing and shelling shore installations, industrial areas, military bases, and airfields. On Wednesday, Aug. 29, 1945 (Tokyo time), Admiral Halsey entered Tokyo Bay aboard his flagship, the *Missouri;* on September 2 (Tokyo time), he witnessed the signing aboard the *Missouri* of the Japanese surrender document. On November 22, he relinquished his Third Fleet command to Admiral Howard F. Kingman. Admiral Halsey had previously requested retirement from the navy. On Nov. 28, 1945, President Truman nominated Admiral Halsey for promotion to admiral of the fleet, five-star rank.

Admiral Halsey is a United States Naval Academy graduate (1904) with a record of First World War service with a destroyer force, on patrol and convoy duty in enemy waters. He attended the Naval War College in 1932–33, and the Army War College, 1933–34. In December

1934, he qualified as a naval aviator, after flight training at Pensacola's Naval Air Station. Included among his military decorations are the Navy Cross, the Distinguished Service Medal, Gold Stars in lieu of a second and third Distinguished Service Medal, and the Army Distinguished Service Medal; in early June 1945, he was named an honorary knight commander of the Order of the British Empire.

HANGO or HANKO. A peninsula on the southern tip of Finland at the entrance to the Gulf of Finland. As a result of the Soviet-Finnish peace treaty of March 12, 1940, Finland leased to Soviet Russia the peninsula of Hangö with surrounding waters and islands for a period of 30 years at an annual rental of 8,000,000 Finnish marks, for the purpose of creating there a naval base capable of defending the entrance of the Gulf of Finland. Soviet land and air forces occupied the peninsula in 1940, but were forced to withdraw as a result of the second outbreak of war between Finland and the Soviet Union in 1941. In accordance with the terms concluding hostilities announced Sept. 19, 1944, Soviet Russia renounced her lease on the Hangö peninsula and obtained instead a 50-year lease to the Porkkala promontory up to within ten miles of Helsinki.

HANNEGAN, Robert Emmet, United States Cabinet official: b. St. Louis, Mo., 1903. On May 2, 1945, Mr. Hannegan was appointed postmaster general in the Truman Cabinet, succeeding Frank C. Walker. As Walker's successor as Democratic National chairman in 1944, Mr. Hannegan played a major role in the organization of the Democratic National Convention which led to Mr. Truman's nomination as candidate for the vice presidency. Born in St. Louis in 1903, the son of a police official, Mr. Hannegan tried to enlist in the marines in the First World War; was spotted by recruiters as under age; and sent back to school. He later studied law at St. Louis University and returned to coach athletics there. He began his political career in St. Louis, and in 1933, became a ward chairman. In 1934, he was named chairman of the City Democratic Committee. He became collector of internal revenue for eastern Missouri in 1942, and the next year, was appointed federal commissioner of internal revenue by the late President Roosevelt.

HARVARD REPORT ON GENERAL EDUCATION. See EDUCATION, REVIEW OF.

HAWAII. The Territory of Hawaii, an integral part of the United States, is a group of 20 islands, some 2,020 miles southwest of San Francisco. The group's eight principal islands, on which is concentrated its population of 467,325 (1944 est.), have a total area of 6,435 square miles. An analysis of the 1944 population figure reveals the following racial roots: Hawaiian, 2.5 per cent; part-Hawaiian, 11.9 per cent; Puerto Rican, 1.82 per cent; Caucasian, 32.63 per cent; Chinese, 6.09 per cent; Japanese, 33.5 per cent; Korean, 1.43 per cent; Filipino, 9.95 per cent; others, .18 per cent. On Oahu, most densely populated island of the group, is located the territory's largest city and capital, Honolulu, with a population (1944) of 245,590, exclusive of military personnel.

Despite the fact that hostilities between the United States and Japan began at Pearl Harbor, naval base 6 miles from Honolulu, the large Japanese population has been given a clean bill of health by military authorities and the Federal Bureau of Investigation, and public statements have been issued to the effect that there were no evidences of sabotage in the area. The territory's Japanese were allowed to continue their normal pursuits. About 7,000 entered the armed services of the United States.

Government.—The governor, and the secretary of Hawaii whose duties are comparable to those of a lieutenant governor, are appointed for 4-year terms by the president of the United States, with the consent of the United States Senate. The governor in 1945 was the Hon. Ingram M. Stainback, who took office as Hawaii's ninth chief executive on Aug. 24, 1942. Other territorial officials (1945) were as follows: secretary, Gerald R. Corbett; treasurer, W. D. Ackerman; budget director, Paul J. Thurston; attorney general, C. Nils Tavares. The territorial legislature (Senate, 15 members; House of Representatives, 30) convenes biennially in odd years on the third Wednesday in February; its sessions are limited to 60 days. Members of the Senate are elected for four-year terms; those of the House for two-year terms. In the United States Congress, the territory is represented by a delegate, elected biennially to the House of Representatives; he has the right of argument in the House, but no vote. Judges of the territorial Supreme Court, Circuit Courts, and Federal District Courts are presidential appointees. Samuel B. Kemp was chief justice of the Supreme Court in 1945; associate justices, E. C. Peters and Louis LeBaron.

Hawaii is making a bid for statehood, and has shown by plebiscite that it is anxious for admission to the United State.

Education.—Public elementary school units in the territory (1944–45), 160; teachers, 1,886; pupils, 48,478; average yearly salary of elementary school teachers, $2,522. Public junior high school units (1944–45), 29; teachers, 563; students, 15,722. Public senior high school units, (1944–45), 29; teachers, 654; students, 17,261; average yearly salary of junior and senior high school teachers, $2,632. Education in the territory is compulsory for children between the ages of 6 and 15, inclusive. Teacher training courses are offered at the University of Hawaii, which at last report had 26 instructors and 269 students. Total territorial appropriation for the department of public instruction[1] and the University of Hawaii (1945–47), $24,921,378; appropriation for education by cities and counties (1943–44), $1,183,871. Superintendent of public instruction, Oren E. Long.

Territorial Institutions.—These, with their populations as of June 30, 1945, are as follows: Territorial Hospital, 1,075; Waimano Home, 535; Kawailoa Training School for Girls, 185; Waialee Training School for Boys, 153; Oahu Prison, 483.

Religion.—Nearly all religions are represented in the territory, Christian predominating. Both the Anglican and the Roman Catholic churches have established dioceses in the islands. The Mormon Church has a tabernacle on Oahu.

Industry.—Hawaii's principal industry is the production of sugar, most of which is shipped to the mainland in a raw state. The sugar crop for 1943, the last year reported, was 885,640 tons. The second largest industry is the cultivation of pineapples; two thirds of the 1943 pineapple crop was set aside for the armed forces. Mo-

[1] The Territory of Hawaii has a single state school system known as the department of public instruction. Operation, maintenance, and construction of lands and buildings are financed by the several (4) counties. All other educational expenses are financed by the territorial legislative appropriations.

lasses, hides, coffee, sisal, bananas, and wool are also exported. Shipments of merchandise from the United States to Hawaii in 1941 amounted to $186,662,139; those from Hawaii to the United States, $122,640,189, of which sugar, pineapples, and coffee were the principal items.

Finances.—The following statement[1] of territorial finances for the fiscal year 1944–45 was supplied by W. D. Ackerman, Jr., treasurer of the Territory of Hawaii:

Balance in treasury, beginning of fiscal year 1944–45	$ 3,814,698.22[2]
Receipts, 1944–45	40,273,843.70[3]
Total	$44,088,541.92
Disbursements, 1944–45	40,516,947.91[4]
Balance, beginning of fiscal year 1945–46	$ 3,571,594.01[5]

[1] The above statistics represent General Fund only. Territory of Hawaii operates on fiscal year basis of July 1 to June 30.

[2] This amount does not include the sum of $9,690,000 temporarily transferred to other funds, and also bond investments totaling $4,500,840.

[3] This amount includes the sum of $5,447,300 retransferred from other funds.

[4] This amount includes the sum of $2,667,300 temporarily transferred to other funds, and also the sum of $4,000,000 representing investment purchases.

[5] This amount does not include the sum of $7,210,000 temporarily transferred to other funds, and also bond investments totaling $8,500,000.

Principal Events of 1945.—In late January 1945, Fleet Admiral Chester W. Nimitz, United States naval commander in the Pacific moved his headquarters from Pearl Harbor to Guam, several thousand miles nearer Japan. Resumption of cable communication between Honolulu and Guam was announced on February 25. Hawaii's 10 P.M. curfew, in effect since the Japanese attack at Pearl Harbor in 1941, was abandoned on July 7. On the Hawaiian labor front, some 20,000 sugar mill, factory, and agricultural employes were affected by the signing on August 8 of an agreement between the Hawaiian Sugar Planters Association and the CIO's International Longshoremen's and Warehousemen's Union, providing for a 7-cent hourly wage increase, vacations with pay, seniority rights, medical care, and the establishment of grievance machinery.

HAZARD, Caroline, American educator and author: b. Peace Dale, R.I., June 10, 1856; d. Santa Barbara, Calif., March 19, 1945. Internationally known as one of America's foremost women educators, Miss Hazard served as president of Wellesley College from 1899 to 1910, during which time the college doubled its enrolment and increased its material and financial resources. Educated by private tutors, Miss Hazard went to Europe at the age of 12 and studied art and music. She also attended Brown University, although at the time the institution did not grant degrees to women. However, she later received honorary degrees from Brown, the University of Michigan, Mills College, Tufts College, Wellesley, and Rhode Island State College. In 1926, she provided $20,000 for the Two Brothers Fellowship at the Yale Divinity School for Biblical study in Jerusalem or other foreign places. In 1930 she gave to Wellesley the original love letters of Robert Browning and his wife, Elizabeth Barrett Browning. She was a corporate member of the American Board of Commissioners for Foreign Missions of the Congregational Church; an elector of the Hall of Fame, and honorary president of the Santa Barbara Museum of Natural History in California. Miss Hazard published more than 20 volumes, including *Narragansett Ballads* (1894); *Some Ideals in the Education of Women* (1900); *From College Gates* (1925); and *Threads from the Distaff* (1934).

HEALTH, PUBLIC. See MEDICINE, PROGRESS IN; PUBLIC HEALTH SERVICE, U.S.

HEART MALFORMATIONS. See SURGERY, PROGRESS IN.

HEBRIDES, The, or WESTERN ISLANDS. An archipelago of about 500 large and small islands off the west coast of Scotland, extending from lat. 55° 35′ N. to lat 58° 32′ N. The group, with an area of about 2,812 square miles, consists politically of the Scottish shires of Ross and Cromarty, Inverness, and Argyll; and may be divided into the Outer Hebrides, of which the principal members are Lewis-with-Harris, North Uist, Benbecula, South Uist, and Barra; and the Inner Hebrides—Skye, Mull, Islay, Jura, Coll, Rum, Tiree, and Colonsay. Originally under the rule of the kings of Norway, they were annexed to the crown of Scotland in 1266. About 100 of the islands are inhabited, largely by Gaelic-speaking people; the total population was estimated (1940) at 205,000. The climate is mild and salubrious, but variable. Forest and fruit trees have been planted on some of the islands; oats, barley, and potatoes are the principal crops. Cattle, horses, and sheep are raised. The fisheries are not fully developed. Whisky is manufactured on Skye, Islay, and Mull.

HEJAZ. See ARABIA—*Saudi Arabia.*

HELICOPTER. See AERONAUTICS, Section 10.

HELIUM. See MINES, U.S. BUREAU OF.

HERRIOT, Edouard, French statesman: b. Troyes, Champagne, France, July 5, 1872. Eminent scholar, author, and educator, and three times premier of France, M. Herriot was revoked from his office of mayor of Lyon in June 1941 after the Germans overran France. He was more or less under house arrest in his estate of Brotel, not far from Lyon, and was held under residential surveillance in eastern France near Vittel, and later in Germany until August 1944. At that time, Laval had him brought back to Paris and asked him to use his authority to set up a new French government in Paris. After Herriot's refusal, he was taken again to Germany. On September 13, he was elected mayor in absentia of Lyon, his whereabouts at that time unknown. On April 30, 1945, he arrived in Moscow with his wife, having been liberated April 26 by units of the Red Army, and on May 19, was in Lyon, ready to assume his duties as mayor. M. Herriot was graduated with honors from the École Normale Supérieure in 1894, and thereafter, taught at the Lycée at Nantes, later at the Lycée at Lyon. In the years before the First World War, he became a popular lecturer, and an able newspaperman and propagandist. He played a prominent part in postwar international conferences. He held his first premiership, 1924–25, and was minister of public instruction, 1926–28. He was again premier, from June to December 1932; minister of state, 1934–36; and president of the Chamber of Deputies, 1936–40.

HERSHEY, Milton Snavely, American industrialist: b. Derry Township, Dauphin County, Pa., Sept. 13, 1857; d. Hershey, Pa., Oct. 13, 1945. Founder of the Hershey Chocolate Corporation, Mr. Hershey was a noted philanthropist who built up a model community for his factory workers and donated many millions for charitable

purposes. Mr. Hershey first sold candy in Philadelphia, but went out of business after his horse-drawn wagon was wrecked. Next he borrowed money and set himself up in caramel-making in New York and failed again. After a similar fate in Chicago, he went to Lancaster, Pa., in 1888 and in 1893 began manufacturing chocolate there. In 1903 he sold out for $1,000,000, bought 1,200 acres near his birthplace, and set up a chocolate manufacturing center. Under his guidance, the one-industry town which bears his name grew into a model planned community, with four golf courses, a swimming pool, a sports arena seating 8,000, and a park of 1,000 acres. The Hershey property with successive expansions, now covers 12,000 acres, and the plant handles milk produced by 25,000 cows in dairies throughout central Pennsylvania. A corollary development was the construction of 267 miles of railroad in Cuba connecting two provinces, and the building of hotels and villages to care for the workers who operated his three sugar mills and the plantations which supplied them. Mr. Hershey developed a system for dealing with his employees which for a generation kept the plant free from industrial disputes. A quarter of the profits in business were distributed every three months in the form of dividends upon wages and salaries. During the depression, he set up a public works program in Hershey, built homes for the workers, a community house, resort hotel, high school, and other improvements. His model plant was disturbed in April 1937 by a sitdown strike staged by the CIO; but a federal regional labor board held an election, and the CIO union was rejected by a vote of 1,542 to 781.

In 1905 Mr. Hershey founded the Hershey Industrial School to house and provide academic, vocational, and commercial training for orphan boys, and in 1918 he set up a trust fund estimated at $60,000,000 (which has since grown to more than $80,000,000) for the maintenance of this school. In 1936 he formed the M. S. Hershey Foundation, with an endowment of 5,000 shares of Hershey common stock, then worth $400,000, to establish and maintain one or more schools for the education of Derry Township boys and girls after they were graduated from high school. Two years later the Hershey Junior College was opened. After his 87th birthday, Mr. Hershey resigned the presidency of the Hershey Industrial School, the Hershey Corporation, and the Hershey Trust Company, but continued as chairman of the board of the Hershey Chocolate Corporation.

HEWITT, Henry Kent, United States naval officer: b. Hackensack, N.J., Feb. 11, 1887. On July 14, 1945, Admiral Hewitt succeeded retiring Admiral Harold R. Stark as commander of United States naval forces in European waters. In 1944, he directed Allied naval operations for the invasion of southern France (August 15); to this assignment he applied lessons learned from the invasion of North Africa in November 1942, in which he commanded American naval forces supporting the attack on Casablanca. He is also a veteran of naval action supporting the invasions of Sicily and the Italian mainland in 1943.

HEYE FOUNDATION. See MUSEUM OF THE AMERICAN INDIAN.

HIGHWAYS. Highway work during the year 1945 consisted of maintenance of the general network of highways and such highway construction as was certified officially as necessary in the conduct of the war. General highway construction was suspended at the beginning of the war and while restrictions were removed soon after the end of hostilities, conditions did not permit a general resumption of construction operations immediately. However, war activities have required improvement of main highways for transport of war materials and construction of access roads to war establishments and sources of critical raw materials. This work passed its peak in 1944 but continued in substantial amounts in 1945. Nearly $5,000,000 of federal road funds were expended in building roads in Washington, Tennessee and New Mexico in connection with production of atomic bombs.

Highway construction, as measured by employment on state and federal projects at the height of the construction season in June, July, and August, reached a new low level. Only an average of 25,648 men were regularly employed. This is less than half the employment in the preceding year and about one sixth that in the same months of 1941. The big drop in employment from 1944 is due to the completion of highways to serve war activities.

The average number of men employed on state supervised highway maintenance in the summer months was 96,410, about the same number as in 1944 and 70 per cent of the number in the same period of 1941. Highways generally have not been maintained at prewar standards but the most essential repairs have been made. The maintenance burden has been materially increased by almost complete abandonment of the normal reconstruction and replacement program, thus making it necessary to keep in service many old road surfaces scheduled for replacement.

Use of highways during the war, under controls that very largely eliminated nonessential traffic, is an excellent indication of the importance of highways during the emergency. Under gasoline rationing and tire shortage there was very little recreational traveling. Manufacture of automobiles for civilian uses was stopped but new trucks were available for the more essential uses.

The need for highway transport in war industries, daily travel of war workers, food production and distribution and other essential uses was such that about 16½ billion gallons of gasoline would have been required in 1945 had the war continued. It now appears that about 19 billion gallons of gasoline will be used on the highways in 1945, or about 20 per cent less than consumption in 1941. The increase of 11.5 per cent over the 16½ billion used in 1944 is due largely to the ending of gasoline rationing on August 15.

Motor Vehicle Registration.—Registration of motor vehicles has held up remarkably well in view of lack of new automobiles and tires to replace those that wear out. It is estimated that 25,137,000 automobiles will be registered in 1945, 4,387,000 less than in 1941, but only 1.3 per cent fewer than the 25,466,000 registered in 1944. The small decline in 1945 indicates that many old vehicles, that would be junked in normal times, are somehow being kept in service.

Truck registrations in 1945 are estimated at 4,629,000, an increase of 2.6 per cent over 1944, and only 230,000 less than in 1941.

Travel by vehicles on all rural highways in 1945 is estimated at 122 billion miles. Nearly one fourth of this travel was by trucks. Transport of goods and commodities over rural highways is estimated at 57 billion ton-miles, an amount very close to that in 1940.

Federal Highway Activity.—During the fiscal year ended June 30, 1945, 4,011 miles of highway of all classes were completed as compared with 5,695 miles in 1944; 8,445 in 1943; 10,178 in 1942; and 12,936 in 1941. Almost all of the work was done with state co-operation. Highways completed consisted of 3,302 miles of access roads, 462 miles of the strategic network, and 247 miles of miscellaneous construction of war significance.

Twenty-one railroad grade crossings were eliminated, two obsolete structures were reconstructed and 54 crossings were protected by signals or other devices.

The total cost of all completed work was $111,062,750 of which $89,425,842 or 80 per cent was paid by the federal government. The cost of completed work was approximately half of that completed in the preceding year although the mileage completed declined only about one third. This was due to the recent building of a greater proportion of low-cost access roads to timber and mineral resources.

Approval of new projects fell to a new low level of 2,730 miles as compared with 11,270 miles in fiscal year 1941.

No additional funds for immediate use were made available during the year. Construction was financed largely with remaining portions of $290,000,000 of access road funds authorized by the Defense Highway Act of 1941 and its amendment of April 4, 1944. Funds for improvement of the strategic network of highways provided by the same legislation and small amounts of regular federal-aid funds were also used.

The Postwar Program. — Reorientation and broadening of the highway program in the light of modern traffic conditions was an active subject in prewar years. In 1939 the report *Toll Roads and Free Roads,* prepared by the Public Roads Administration after detailed study of highway conditions, recommended federal assistance in making three classes of improvements: (1) Construction of a system of interregional highways with appropriate connections through and around cities; (2) continued improvement of the federal-aid system, and (3) improvement of a system of secondary or feeder roads.

The beginning of the war removed all prospect of immediate action on these recommendations, but, as highway work was stopped and normal replacement of worn-out surfaces was not made, the need for a large postwar program was accentuated. Data on highway conditions and use in prewar years had already established the need for major improvements and the great use made of highway transport during the war added weight to the facts already presented.

A large postwar highway program offered advantages beyond the transportation field by providing employment and stimulating business activity in the postwar readjustment period and would aid the national economy in the years beyond the readjustment period. As the industry of the country was wholly converted to war, the importance of preparing a program, ready for launching at the end of the war, was generally recognized.

Further indication of the form the program should take was given in the report of the National Interregional Highway Committee submitted to Congress by the President on Jan. 5, 1944. This report recommended the designation and improvement to high standards of a national system of rural and urban highways totaling approximately 34,000 miles and interconnecting the principal cities of the several geographic regions of the country.

Legislation giving effect to the recommendations of the two reports was introduced in Congress and committees held hearings, principally in March, April and May of 1944. The Federal-Aid Highway Act of 1944 was approved on Dec. 20, 1944.

This legislation authorized an appropriation of $500,000,000 to aid the states in highway improvement in each of the first three postwar fiscal years. For each year there was authorized $225,000,000 for the Federal-aid Highway System, $150,000,000 for expenditure on a system of principal secondary or feeder roads, and $125,000,000 for sections of the Federal-aid System in urban areas. Conforming in effect to the recommendation of the Interregional Highway Committee, the act required the designation of a National System of Interstate Highways not exceeding 40,000 miles in extent, by joint action of the state highway departments and the Public Roads Administration and provided that the new system, when designated, would become automatically part of the Federal-aid Highway System, and so eligible for improvement with the two funds provided for the latter system. No funds were earmarked for the Interstate System only. It also required a system of principal secondary or farm-to-market roads to be selected by the state highway departments in co-operation with county officials and the Commissioner of Public Roads.

Funds for the first postwar fiscal year were apportioned on Jan. 6, 1945. Rules and regulations to govern administration of the act were approved and issued on April 6, 1945. With these steps taken the general pattern of the postwar program was established. With the ending of the war emergency actual construction could legally begin. However, much remained to be done, both in designating highway systems and in detailed planning of projects. Congress by joint resolution on Oct. 2, 1945, authorized the beginning of construction operations but it was evident that a large program could not be launched before winter arrived.

Planning the National System of Interstate Highways.—In February each state highway department was requested to proceed at once with recommendation of routes for inclusion in the National System of Interstate Highways as required by the Federal-Aid Highway Act of 1944. Attention of the states was directed to the system of highways outlined and recommended in the report *Interregional Highways.* It was made clear that in calling attention to this system the Public Roads Administration intended in no way to limit the freedom of action of the states in selecting routes for tentative designation.

Under the provisions of the law it is necessary that each state highway department consider not only the internal needs of the state but also that it act jointly with highway departments of adjoining states to select a connected system.

Maps showing recommended routes accompanied by traffic data and other information supporting the recommendations have been submitted by nearly all of the states. In general the tentative state recommendations coincide very closely with the system recommended by the National Interregional Highway Committee. A different routing is proposed for some sections and a number of additional routes across states are proposed. In a number of instances these proposed routes are not met at the state line by a proposed

route in the adjoining state. Total mileage recommended for inclusion in the system considerably exceeds the legal limitation of 40,000 miles.

The proposed routes are now (October 1945) being studied in detail by the Public Roads Administration. Probable service to population, industry and the national defense by the routes proposed and by possible alternates is being carefully analyzed. A tentative integration of the routes proposed by the states, to follow from this review, will be referred to the state highway departments for their further consideration severally, and, if necessary in regional groups, leading to eventual agreement on the national system as a whole.

As conceived, the National Interstate Highway System will connect our larger cities and industrial areas with broad, modern highways over which traffic will flow freely. It will pass directly through the cities on express routes. There must also be provision of circumferential and distribution routes within and around the larger cities. The mileage of these circumferential routes may aggregate several thousand miles and this must be taken into account in selecting the system.

Planning Secondary Systems.—The Federal-Aid Highway Act of 1944 authorizes $150,000,000 for improvement of secondary or feeder roads in each of the first three postwar fiscal years. This is the first authorization of funds in an amount large enough to permit a major federal program of secondary road improvement under conditions that will lead eventually to the creation of a co-ordinated system.

The funds are to be available for expenditure only on principal secondary and feeder roads and on a system of such roads selected by the state highway departments in co-operation with county supervisors, county commissioners, or other appropriate local road officials and the Commissioner of Public Roads. A statement of policy and procedure in designating systems was issued in May. The object of the legislation was stated to be the initiation of a more comprehensive rural road program through the selection and improvement of a system of principal secondary or feeder roads, supplementing the Federal-aid Highway System in rural areas, so that together the two systems will form an integrated network of trunk-line and feeder roads.

No specific limit is to be placed on the mileage of secondary road systems. However, the states were urged to include only such mileage as can be adequately improved within a reasonable period of years and maintained with revenues that may be expected to accrue.

One of the primary purposes of the state highway planning surveys of prewar years was the scientific planning of local roads to give adequate service at a cost within the range of financial resources. Data on traffic volume, condition of road improvement, population distribution, and location of schools, churches and business places have already been used in planning a lesser program of federal-aid secondary roads. This information is now being used in completing work already well advanced in many states and begun in others.

Highways in National Forests and National Parks.—Construction of highways in federal forest and park areas was almost entirely suspended during the war. A few roads of particular importance in reaching mineral deposits and timber needed for war purposes were improved. Generally the work was only that required for logging and ore hauling operations. However, considerable work was done on surveys, soil investigations, preparation of plans and specifications, and the development and approval of programs of projects for the enlarged postwar program authorized in the Federal-Aid Highway Act of 1944. This act provides $25,000,000 forest highway funds, $4,250,000 for national park highways, and $10,000,000 for parkways, for each of the first three postwar fiscal years.

The Department of Agriculture appropriation bill for the fiscal year ending June 30, 1946, provides an appropriation of $1,500,000 of forest highway funds for maintenance and reconstruction. Regulations to govern the expenditure of these funds were prepared and issued after approval by appropriate officials. Plans and specifications are now prepared for projects that will absorb all park and forest highway funds and those for parkways for the first postwar fiscal year. Construction will begin in the spring of 1946.

The Inter-American Highway.—Work on the 3,300-mile highway from the Texas border to Panama continued during the year but only at a moderate pace. At the end of the year 2,487 miles had a surface suitable for automobile travel at all seasons of the year and 280 miles was passable in dry weather. Impassable gaps in Mexico, Honduras, Costa Rica and Panama totaled 567 miles. The gap in Honduras is only eight miles and a bypass is in use.

Planning of this highway is an international undertaking but each country through which it passes is in full control of financing and constructing sections within its borders. All work in Mexico has been done without outside assistance. Sections in other countries have been financed by the government of the country and often engineering assistance has been given by the United States. The United States has aided in financing some of the projects and currently assistance is being given from a fund of $20,000,000 authorized by the act of Dec. 26, 1941. Assistance from this country is limited to two thirds of the cost.

An all-weather road exists from the United States border to about 50 miles south of Oaxaca, Mexico, a distance of 1,140 miles. From Oaxaca south, Mexico has pushed the improvement as fast as wartime conditions would allow.

R. E. ROYALL,
Public Roads Administration.

HIMMLER, Heinrich, Nazi government official: b. Munich, Germany, Nov. 7, 1900; committed suicide, Lüneburg, Germany, May 23, 1945. Creator and chief of one of the world's greatest police systems, the German Geheim Staats Polizei or Gestapo; minister of the interior; and ultimately head of the entire administrative organization inside Germany, Heinrich Himmler had the distinction of being the embodiment of Nazi terror and violence as instruments of national and international policy.

Born of Bavarian parents in Munich, he was too young for First World War combat service. He joined Hitler's Nationalist Socialist German Workers' Party in 1919; was in 1923 considered too unimportant a party member to be punished after the abortive putsch which put Hitler behind bars. It was Himmler's genius for organization which attracted Hitler's attention in the early days of the Nazi movement. Even then, he kept an exhaustive card-index file of persons within and without the Nazi fold, and over a period of some 20 years, this file grew to enormous proportions and contained dossiers of every

person of importance throughout Europe. In the years of German preparation for the Second World War, these records formed the basis for the numerous blood purges which rid the Nazis of all effective opposition inside Germany, and later when Nazi armies were on the march in Europe, they singled out for elimination those who constituted a threat to German victory.

Himmler became chief of the Schutzstaffel Corps—the SS—in 1929, and in 1933, at Hitler's order, formed the Gestapo. Within a very short time, these organizations became the mainstay of the Nazi regime—the Gestapo ferreting out the opposition; the SS making arrests, conducting "trials," and executing the victims.

In 1936, Himmler was appointed police commissioner and director of law and order for the entire Reich. He had by that time done away with hundreds of thousands of Germany's "internal enemies," and with the invasion of Austria two years later, did the same for that country. The pattern was repeated for Czechoslovakia, Poland, Norway, France, Russia—espionage, execution of whole populations by any of a number of despicable methods, deportation to Germany of subjugated people for forced labor battalions, concentration camps for military and political enemies.

Himmler reached the height of his power in 1944, after the attempt on Hitler's life on July 20. From the wholesale reorganization of army and civil administration that followed, he emerged chief of the home front and commander of the Wehrmacht inside Germany, and second only to Hitler in authority over the German people. This marked his final victory over other high Nazi officials, who had for years jockeyed for position inside Hitler's inner circle.

After German capitulation, Himmler was the object of an intensive manhunt in the British Second Army area, and on May 21, 1945, was apprehended northeast of Bremen. On the evening of May 23, he chose to commit suicide by poison rather than face the probability of death before a firing squad.

HIROHITO, hē rō-hē'tō, emperor of Japan: b. April 29, 1901, son of Emperor Yoshihito. In 1921, as crown prince, he made a tour of Europe. The same year his father retired from office by reason of ill health, and the government of the empire devolved on Hirohito as prince regent. On Jan. 26, 1924, he married Princess Nagako Kuni by whom he had seven children, two sons and five daughters born between 1925 and 1939. The eldest son, heir apparent to the imperial throne, is Prince Akihito Tsuguno Miya (b. 1933). On the death of the Emperor Yoshihito, Dec. 25, 1926, Hirohito succeeded to the throne; but for the previous five years he had in effect been the sovereign. The rescript which Hirohito issued on this occasion stressed his desire for domestic harmony and peace with other nations. Officially the new reign was designated the period of Showa, meaning Light and Peace. Yet this noble aspiration flatly contradicts the imperial policy initiated only five years after Hirohito's accession when in 1931 Japan invaded Manchuria, thereby starting a war with China, and a decade later made unprovoked attacks on territories of the United States, Great Britain, France and the Netherlands, and also compelled Siam to become a vassal state.

Since the overthrow of the shogunate in 1867, ending the feudal system, and the restoration of the imperial power by Emperor Meiji Tenno, the ancient Shinto doctrines that the emperor is the descendant in unbroken succession of the Sun Goddess, and is therefore himself divine, drawing his authority from divine ancestors, have been accepted as the state religion. In fact, the emperor bears the title Dai Nippon Tekoku Tenno (Imperial Son of Heaven of Great Japan). Japan may therefore be considered a true theocracy, the emperor being more than a high priest and even more than a symbol in the usual sense of the term: he is a god in his own right, like the Inca monarchs to the ancient Peruvians. To what extent Hirohito with his divine prerogatives, but with the disadvantages of being so far above the mundane sphere as to appear more a symbol of the state than an initiator and activator of policy, could influence his government is a debatable question. Although he was supreme commander of the armed forces whose chiefs had direct access to him and were accountable only to him, not to the Cabinet or Diet, it seems to have been the feudal-minded military men with a group of avaricious industrialists who made the political and military decisions that involved Japan in a global war that culminated in August 1945 with her catastrophic defeat and the loss of her overseas empire. Hirohito seems to have been no more than a symbol used by these men to achieve their ends.

HISPANIOLA or **SANTO DOMINGO.** An island in the West Indies, divided politically into the Republic of Haiti (western part) and Dominican Republic (eastern part). See DOMINICAN REPUBLIC; HAITI.

HISTORICAL ASSOCIATION, American. See AMERICAN HISTORICAL ASSOCIATION.

HITLER, Adolf, German dictator: b. Braunau on the Inn River in Upper Austria, April 20, 1889; reported to have died in Berlin May 1, 1945. Adolf Hitler was the fifth of his father Alois Hitler's seven children and the third child of Alois Hitler's third wife. Alois Hitler was born in 1837 in Strones, Lower Austria, the illegitimate son of Maria Anna Schicklgruber. He changed his name to Hitler—reputedly his father's name—in 1876. After Alois Hitler's retirement as a minor customs official, the family settled at Leonding, near Linz, provincial capital of Upper Austria. At the elementary school, Adolf Hitler's teacher complained of his lack of concentration on his work. At the age of 12, Adolf failed in the secondary school. He never went beyond the fourth of the seven grades.

When Adolf was in his 13th year his father died. After the boy had idled for a year, his mother finally succeeded in having him apprenticed to a paper hanger at Urfahr (twin city of Linz). After six months, having failed to learn the trade, Adolf came home to live on his mother's meager pension. A year before Hitler's mother died, in 1908, she sent Adolf to Vienna, where he expected to be admitted to the capital's world-famous Academy of Arts. The name of Adolf Hitler appears on the qualification list of the academy for 1907 and 1908. The first verdict reads, "Test drawing below standard"; the second, "Not admitted to the test." Much of Hitler's paranoia traces to this failure. His resentment was translated into a bitter and enduring hatred of Vienna, the Austro-Hungarian monarchy, and its people.

After another brief interlude in Linz—at his mother's expense—Hitler again tried his luck in Vienna as a bricklayer's helper. Unsuccessful in

this and in all other trades he attempted, Hitler's interest turned to politics. His most admired model was the Pan-German member of the Reichsrat, Georg Schönerer, an all-out advocate of German world domination, who hated the Roman Catholic Church and the Jews.

At the outbreak of the First World War, Hitler was supposed to present himself to the Austrian consulate for induction. By failing to do so, he became a deserter from the Austrian Army. He escaped prosecution by voluntarily serving in the allied German Army. A regimental orderly, he never rose above the rank of *Gefreiter* (private first class) in his Bavarian infantry regiment.

After the end of the First World War, Hitler was afraid of losing shelter, food, uniform, and pay. Until April 1920, he idled in army barracks at Traunstein, Bavaria. When the post was broken up, he went to Munich, still on the army payroll. By that time, a cleverly disguised section of the German General Staff, later to become the "psychological laboratory" of the Wehrmacht, was infiltrating political groups to educate civilians in militarism. Capt. Ernst Röhm directed lectures and discussions in the Munich barracks, designed to train the men as demagogues or secret observers. In one of these discussions, Hitler shouted down a soldier who argued against anti-Semitism. Captain Röhm was so pleased that Hitler was appointed "education officer"—without a military promotion.

The army used to send "education officers" to party meetings disguised as interested civilian listeners. Hitler was assigned to report on a German Workers' Party, which met in a beer cellar, and signed up as member number 7. This party later changed its name to National Socialist German Workers' Party (Nationalsozialistische Deutsche Arbeiterpartei). After delivering some speeches, Hitler was appointed the party's propaganda chief.

Hitler argued that Germany had not lost the war, but had been stabbed in the back by Jews, Communists, and Socialists. Other nations, with the temporary exception of Britain, were inferior and should be conquered. Claiming to be threatened by Communists, Hitler asked for a personal bodyguard, so the SA (Sturmabteilung) was organized and commanded by Captain Röhm. This organization was later followed by the SS (Schutzstaffel). These groups spread terror, but the authorities were tolerant.

In 1923, the National Socialist Party was a factor to be reckoned with in southern Germany and Hitler was already its leader. The head of the Bavarian state, Generalkommissar Gustav von Kahr, together with General von Lossow and Police Col. Hans von Seisser, plotted to overthrow the republic.

On Nov. 8, 1923, a meeting was called in the Munich Burgerbräuhaus. Hitler brought his guard, including Captain Göring. Kahr, Seisser, Lossow, and Ludendorff also were present. Hitler proclaimed the outbreak of the "national revolution." General von Seeckt, head of the German Army (Reichswehr), although not averse to the putsch, objected to the timing. Kahr, Lossow, and Seisser, warned by von Seeckt, withdrew from the putsch without telling Hitler. After a night of debates and confusion, a group of 2,000 National Socialists, including Ludendorff and Hitler, marched through Munich in a bid for power. Seisser, meanwhile, had mobilized his police. After the demonstrators refused to disband, the police shot 14 National Socialists. At the first shot, Hitler flung himself to the ground and later fled.

Hitler, Ludendorff, and eight others were charged with high treason. The "people's court" acquitted Ludendorff and sentenced Hitler to the minimum penalty of five years' fortress detention. He was released before the end of 1924. In the fortress of Landsberg on the Lech, Hitler was treated as a distinguished guest. Among the party members who shared his confinement was Rudolf Hess, to whom Hitler dictated his book *Mein Kampf*.

Geheimrat Alfred Hugenberg, member of the board of Krupp and administrator of Pan-German political funds, decided to line up his Conservative Nationalists with Hitler's followers. Well-equipped with funds, provided by Hugenberg, the National Socialist Party went full blast into the election campaign for the German Reichstag in September 1930. It won 6,500,000 votes and 107 seats, thus becoming the second largest party in Germany. With Hugenberg's money available, Hitler turned away from the little people who had almost ruined themselves to support his party and decided to be "respectable."

A presidential election was held in March 1932. President Paul von Hindenburg, running for another term, was opposed by Hitler, who only recently had become a German citizen. Hindenburg won, but Hitler received 13,000,000 votes. In August 1932, Reichstag elections gave his party 13,700,000 votes and 230 seats, making it the strongest in Parliament. The wire-puller of German politics, Gen. Kurt von Schleicher, had Hitler summoned twice to see the president.

Appointed chancellor after von Papen's failure, Schleicher, who disliked Hitler and possessed secret files of his record, tried to develop a Socialist-militarist combination. The general strongly resented the fraudulent distribution of government funds to indebted landowners. One of the estates thus illegally financed belonged to Hindenburg. Schleicher was ready to release reports on the scandal. Junker landowners and their officer-relatives uniting against him, Schleicher had to resign, and Hitler, untroubled by frauds, was appointed chancellor Jan. 31, 1933. Hitler dissolved the German Parliament, in which his party finally had 43 per cent of the seats, and established a one-party rule with the German Army as sole partner.

Hitler's first attempt at conquest was dictated partly by revenge. In July 1934, long before German armaments were completed, Hitler personally inspired a National Socialist putsch in Austria. He was responsible for the murder of Chancellor Engelbert Dollfuss and the ensuing bloodshed. The plan to annex Austria was postponed after Italy threatened to intervene. Thereafter it became Hitler's aim to make Mussolini his vassal.

When the German General Staff decided in June 1934 that Hitler's Storm Troopers should be reduced to obedience to the army, Hitler did not hesitate to carry out a "blood-purge" and personally shot Captain Röhm. The army, in return, did not object to the killing of General Schleicher.

After President von Hindenburg's death in August 1934, Hitler (with the army's consent) was proclaimed leader, or führer, of the Reich with unlimited powers. When the non-German countries meekly accepted the introduction of compulsory military service in Germany, the remilitarization of the Rhineland, and the annexa-

tion of Austria in March 1938, Hitler came to feel that his will was law everywhere and that his Third Reich would really last for a thousand years. He even believed that his conquests might be achieved without active resistance, by blackmailing victim countries into acquiesence. British Prime Minister Chamberlain's visit to Berchtesgaden (September 1938) to prepare the surrender of Czechoslovakia was construed by Hitler as striking evidence of international submissiveness. The negotiations with Russia, which led to the German-Russian nonaggression pact of August 23, 1939, were carried out on the German General Staff's initiative rather than the führer's. Even after declaration of war, Hitler believed his enemies would surrender without serious fighting.

Military operations against Poland in 1939 and against Norway, Denmark, France, and the Low Countries in 1940 were carried out according to the plans of the German General Staff with Hitler as a figurehead. But after Great Britain failed to surrender, bewilderment spread among the German generals and Hitler was urged to let his intuition decide on future courses of action. His orders became oracles to the general staff. Hitler's intuition brought about the fatal Russian campaign and the alliance with Japan which led to war with the United States.

On July 20, 1944, an attempt against Hitler's life was reported. If the story is true, it seems incredible that he could have escaped without serious injury. Either the reports were incorrect or a double attended the conference and was killed, while Hitler boastfully claimed to have been protected by Providence.

Superstitious faith in a last-minute miracle to ward off disaster animated Hitler during the crucial months of 1945. His ultimate fate is veiled in mystery. A German communiqué reported his death in action in the Reich's Chancellery in Berlin on May 1 at 3:30 P.M. Later versions told of suicide, perhaps in company with Eva Braun, whom he was said to have married at the last minute. The Russians found several corpses that might have been Hitler's, but no positive identification was made. ERWIN CH. LESSNER,
Author of Phantom Victory.

HOCKEY. See SPORTS IN 1945.

HODGES, Courtney H., United States Army officer: b. Perry, Ga., Jan. 5, 1887. General Hodges commanded the United States First Army in the Allied invasion of France and the subsequent drive into Germany (1944–45). He became chief of the First Army in August 1944, succeeding Gen. Omar N. Bradley whom he had served for a time as deputy commander.

Life magazine says of the First Army and its commander, in an editorial *Salute to the Armies* (April 9, 1945), "The American First Army lives up to its name . . . It was the first to land in France, the first to take Paris, the first to enter Germany. Its divisions were handpicked by General Bradley, who turned it over in top form to Lieut. Gen. Courtney Hodges.

"It was the First Army which took Cherbourg. Later it was the First which engineered the break-through at St. Lô and opened a hole for the Third. It was the First . . . that painfully cleared out the Hürtgen Forest. And it was one division attached to the First, the 101st Airborne, which clung to Bastogne with fantastic bravery . . . during the December Battle of the Bulge. For holding out until relieved by counterattacks . . . the 101st was given a presidential citation.

". . . it was the First which was in the van of the American armies. It had seized the Ludendorff Bridge (March 7) at Remagen, thus forcing the first crossing of the Rhine. From there its spearheads raced north, outflanking the entire Ruhr valley."

On April 19, 1945, General Hodges' troops took Leipzig, fifth largest city in the Reich, and on April 25, effected a junction with Marshal Konev's First Ukrainian Army at Torgau on the Elbe River, merging the Allied western with the Russian eastern front in Europe.

On May 22, 14 days after the German surrender, announcement was made of the redeployment of General Hodges and his First Army to the Pacific theater, by way of the United States.

One of the few non-West Pointers in the Americans high command, General Hodges served in Mexico with Pershing's Punitive Expedition (1916) and in France in the First World War as an infantry officer. Between the two wars, he taught at West Point; was a member of the Infantry Board (1929–33); and a general staff member of the Philippine Department. From October 1940–May 1941, he was commandant of the Infantry School at Fort Benning, Georgia. In February 1943, he succeeded Lieut. Gen. Walter Krueger in the Third Army command, and was promoted lieutenant general. He was attached to General Bradley's staff when Allied pre-invasion plans were in the making. General Hodges is a graduate of the Field Artillery School (1920), the Command and General Staff School (1925), and the Army War College (1934). On April 17, 1945, he was recommended by President Truman for promotion to the rank of full general (temporary).

HOFFMAN, Gustave Adolph, American artist: b. Cottbus, Brandenburg, Germany, Jan. 28, 1869; d. Rockville, Conn., Aug. 30, 1945. A noted artist and etcher for over 50 years, Mr. Hoffman has work represented in the National Gallery in Berlin, the Royal Gallery in Munich, the National Gallery in Leipzig, the British Museum in London, and many American collections. One of his notable contributions was the development of a process for producing etchings in all colors in one impression.

HOLLAND. See NETHERLANDS, THE.

HOLSTI, Eino Rudolf Woldemar, Finnish diplomat: b. 1881; d. Palo Alto, Calif., Aug. 3, 1945. Finnish minister of foreign affairs from 1919 to 1922 and again from October 1936 to November 1938, Dr. Holsti had been acting professor of political science at Stanford University since 1941. He received his M.A. degree in 1908 and his doctorate five years later from the University of Helsinki. He served twice in the Finnish Diet (1913–18; 1922–23) and for eight years lectured on sociology at the University of Helsinki. As minister of foreign affairs, he secured recognition of Finland's independence at the Paris Peace Conference in 1919, and saved his country from starvation by a successful appeal to Herbert Hoover, then United States food administrator. He served as minister to Great Britain (1918–19); envoy extraordinary and minister plenipotentiary to Estonia and Latvia (1923–27); and as permanent delegate to the League of Nations and minister to Switzerland (1927–36; 1938–40). Before he resigned as minister of foreign affairs in 1938, it was reported that there had been grave friction between him and the German government because of his anti-Nazi views. In 1939, as Finnish

delegate to the League, he fiercely arraigned Russia's action in the Baltic and obtained her expulsion from that body. Nazi domination of Finnish affairs forced him into exile in 1940.

HOME ECONOMICS. See AGRICULTURAL RESEARCH ADMINISTRATION; FOOD RESEARCH.

HOME OWNERS' LOAN CORPORATION. See NATIONAL HOUSING AGENCY, Section 2.

HOMMA, Masaharu, Japanese Army officer who commanded Japanese forces in the Philippines in the early days of the Pacific war. When he surrendered for Allied questioning in Tokyo on Sept. 15, 1945, he declared that the American defense of Corregidor was so strong, he had about admitted Japanese failure when the Americans raised the white flag over the island fortress on May 6, 1942; he added that the battle for Bataan had taken much longer than he had expected. General Homma denied he had ordered the infamous Bataan death march in which American and Filipino prisoners were unmercifully beaten and stragglers killed by their Japanese guards. Homma was replaced in the Philippines by Lieut. Gen. Shigenori Kuroda in the spring of 1943, and was ordered home and retired. In the First World War, Homma was an observer with the British in France; later held military posts in India and in London; and in 1939, commanded Japanese forces, at Tientsin, China. Prior to Pearl Harbor, he commanded the Japanese Fourteenth Army on Formosa, then training for the Philippine invasion. At the close of the year Homma was on trial in the Philippines as a war criminal.

HONDURAS. A Central American republic noted for banana, silver, and gold production, Honduras has an area of 46,322 square miles, and a population (preliminary census figures of June 24, 1945) of 1,600,000. Tegucigalpa, the capital (urban population June 24, 1945 census, 55,715), is the administrative hub for 17 departments, 273 municipalities and districts. The most mountainous and heavily mineralized Central American country, Honduras is rich in hard woods, medicinal plants, and excellent agricultural and grazing land. *Mestizos* (Spanish and Indian cross) make up 86.4 per cent of the population. Indians constitute 9.54 per cent, and 4.06 per cent are whites, Negroes, and Orientals in that order.

Government and Politics.—Under the 1936 Constitution now in effect, Honduras has a president, a vice president, single-house legislature of 45 members elected directly for 6 years, and a Supreme Court of 5 appointed by Congress. President Tiburcio Carías Andino, elected in 1932 by a great popular majority, was continued in power by Article 202 of the 1936 Constitution until Jan. 1, 1943, and by vote of Congress on Dec. 18, 1939, until Jan. 1, 1949. Internally, the country was at peace during 1945. Opposition parties, hoping to take advantage of wartime discomforts to foment disorders, lost support as economic conditions improved. Externally, Honduras gave some consideration to a new plan for Central American Union but took no action.

Education.—Some 52 per cent of the inhabitants above 7 years are illiterate, but free, public secular education between the years 7 and 17 is compulsory, and there are 1,062 primary schools, 18 secondary schools, the National University and various private institutions in operation. Slightly more than 10 per cent of the national budget is for education.

Agriculture and Mining.—Both agriculture and mining recovered significantly in 1945 from wartime difficulties. In the first quarter, Honduras exported 3,032,798 stems of bananas, an increase of 38 per cent over shipments in the last quarter of 1944 and a 29 per cent increase over those during the first quarter of 1944. As of March 31, 1945, the area planted to bananas totaled 41,961 acres, a slight increase as compared with the 41,457 acres on Dec. 31, 1944. Wine production, begun in 1944, yielded between 40,000 and 50,000 bottles (one-fifth gallon). On the other hand, drought decreased the amount of abaca stalk available for processing. The industry was begun on Jan. 3, 1942, when the United Fruit Company contracted with the Defense Supplies Corporation to plant from 7,000 to 30,000 acres of abaca and to supply fiber to the government. By the beginning of 1945 one plantation was producing fiber at an estimated rate of a million pounds a week. Shipping shortages preventing lumber imports from the United States encouraged exportation of Honduran lumber to neighboring countries. Exports of pine logs amounted to 644,444 board feet from July 1, 1944, to March 31, 1945. Rubber production in 1945 fell below that of 1944, and exports of clean and washed coffee in the first quarter of 1945 amounted to only 3,340 bags of 60 kilograms each (1 kilogram is 2.2046 pounds) as compared with 6,392 bags in the first 3 months of 1944. On June 30, 1945, the Food Supply Program of the Institute of Inter-American Affairs in Honduras was terminated. The work of the institute, however, was immediately taken over by the Honduran government agency, the National Nutrition and Agriculture Commission.

Although Honduran industries are far less important than agriculture and mining, 1945 saw satisfactory progress in their development. The Compañía Azucarera Hondureña of San Pedro Sula, the only sugar mill in the country, completed milling season for 1945 late in June, producing 1,300 short tons of sugar (about one-tenth of the annual consumption of the country). Honduras' only cigarette factory—the Tabacalera Hondureña of San Pedro Sula—produced 10 per cent more than had been considered maximum. The Fábrica de Manteca y Jabón Atlántida of La Ceiba continued to experiment with native oil-bearing nuts and seeds for producing soap and shortening.

Transportation.—More than 13 per cent of the budget is spent on new road construction or repairs, and there are now more than 1,000 miles of roads. Important transportation developments in 1945, however, were in airlines. On March 8, 1945, Congress approved the application of Servicio Aéreo de Honduras, S.A. for a domestic airline contract. SAHSA's initial capital was subscribed by the government, Honduran citizens, and a private airline, which will lend technical and administrative personnel in getting the company started. TACA (Transportes Aéreos Centroamericanos) on July 16 added three more towns (Comayagua, La Paz, and Marcala) to its network of domestic airline services. Honduras now has regular airline service to 22 towns, serving about 30 per cent of the population.

Finance.—With favorable business conditions throughout the country, the budget collections for 1945 were greater than either 1943 or 1944 and the Honduran supply of dollars was steadily increasing.

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HONDURAS, British. See BRITISH HONDURAS.

HONEY. A prospective 1945 honey crop of 225,779,000 pounds, based on September 15 indications, was reported for the United States by the Department of Agriculture. This was an increase of 20 per cent over the 1944 production and 16 per cent above the 5-year (1939–43) average production. The leading producing states with the amount in pounds credited to each in 1945 were: Iowa, 7,689,000; Wisconsin, 6,080,000; Minnesota, 5,386,000.

HONG KONG. A British colony off the southeast coast of China, consisting of several islands and a small part of the mainland at the mouth of the Canton River. The island of Hong Kong, about 11 miles long and 2 to 5 miles broad, has an area of 32 square miles; it is separated from the mainland by the Lyemun Pass, about half a mile in width. First occupied by Great Britain in 1841, it was formally ceded in 1842. Kowloon Peninsula, about 3 square miles in area, which faces the island, is also British-owned, having been ceded in 1860. The New Territories, in the southern part of the Kwangtung Province of China, together with the island of Lan-tau and Mirs Bay and Deep Bay, were leased to Great Britain in 1898 for 99 years. The total area of the colony is 391 square miles. It was administered by a governor, assisted by an Executive Council of 9 members and a Legislative Council of 17 members, nominated nonofficials including Chinese representatives. The population in 1941 was 1,639,337, the majority being Chinese. Education was not compulsory, but schools were held to certain standards of efficiency and inspected by the state. There were 1,273 schools subject to government supervision with 116,280 pupils, including 4 government schools for children of British parentage and 13 government schools for Chinese boys and 2 for Chinese girls. There was 1 school for Indians. The University of Hong Kong, which was opened in 1912, had faculties of medicine, engineering, science, and arts.

From having been a barren island, within 100 years Hong Kong grew to be an important center of international trade. Besides Great Britain and China, other countries trading largely with the colony were the United States, French Indo-China, Germany, the Netherlands East Indies and Siam. For the first nine months of 1941, the imports were valued at HK$270,779,000 and the exports at HK$511,093,000. Except for taxes on alcoholic liquors, tobacco and petroleum, Hong Kong was a free port. Revenue was derived from port and harbor dues, house assessment and estate and stamp duties.

The Peak, residential section of Victoria, the capital, is connected with lower levels by a cable tramway. A railway through Kowloon and the New Territories, 22 miles in length, connects the colony with Canton. There were 384 miles of roads in 1940, and before the Japanese invasion Hong Kong was served by British, American, and French air services, and by Chinese-owned lines into China.

Japanese land, air, and naval forces attacked Hong Kong on Dec. 7, 1941. British, Canadian, and Indian troops were forced to retreat from the mainland December 14. After an 11-day siege, on Dec. 25, 1941, the colony fell to Japan because the water supply had failed. A total of 18,000 British, Australian, and Canadian troops were captured by the Japanese. Later, in January 1942, about 700,000 civilian prisoners were evacuated, some to the old Stanley Prison.

Japanese installations at Hong Kong were raided by Allied carrier aircraft during 1942–43, and after American occupation of the Philippines they were repeatedly attacked by land-based bombers. With capitulation of Japan it was rumored that the Chinese proposed to occupy Hong Kong. On August 23, when Prime Minister Attlee stated in the House of Commons that a British commander would accept Japanese surrender of the colony, Winston Churchill recalled "that on numerous occasions, and particularly at the Cairo Conference [with Chiang Kai-shek] in 1943, the government have made it plain that they do not contemplate modification in the sovereignty of His Majesty's territories in the Far East." A British naval force entered the port of Hong Kong on August 30, and the colony was formally surrendered to Rear Admiral Cecil H. J. Harcourt by the Japanese army and navy commanders on Sept. 16, 1945. Tales of Japanese barbarity to their captives in Hong Kong paralleled those elsewhere. The Japanese also confiscated almost the whole of the £90,000 sent there each month by the British Red Cross to aid prisoners and internees; out of one monthly advance the Red Cross representative received £80,000—all other moneys, month after month, went into Japanese pockets.

HONJO, Baron Shigeru, Japanese Army officer: b. 1876?; committed suicide, Tokyo, Nov. 20, 1945. Former commander of the Japanese Kwantung Army, Baron Honjo had been held responsible for the Mukden incident in 1931. He had served as adviser to the New Asia Movement of the Imperial Rule Assistance Association, a militarist propaganda clique, and was termed by Allied headquarters "one of the ringleaders of the Japanese war lords." He was also president of the newly organized Society for the Relief of Demobilized Soldiers. Baron Honjo committed harakiri shortly after his arrest had been ordered as a war criminal suspect.

HOPKINS, Harry L., American government official: b. Sioux City, Iowa, Aug. 17, 1890; d. New York, N.Y., Jan. 29, 1946. On July 3, 1945, Mr. Hopkins retired from government service for reasons of health, submitting his resignation as adviser and special assistant to President Truman. He had served the late President Franklin D. Roosevelt in a similar capacity from March 1941 until the latter's death in April 1945.

Mr. Hopkins was a welfare worker in New York City before he entered the federal government under Mr. Roosevelt in 1933, as the first administrator of emergency relief. From 1935–38, he headed the Works Progress Administration, and supervised the spending of billions of dollars to make work for the nation's unemployed. He was then appointed secretary of commerce, a post he was forced to relinquish in August 1940 because of poor health. The next year, he was named co-ordinator of lend-lease, a position he held for only a few months. He was appointed a member of the advisory committee of the Office of War Mobilization in May 1943.

Long-time confidant of the late President Roosevelt, to whom he was intensely devoted, Mr. Hopkins accompanied that chief executive to the Atlantic Charter meeting with Prime Minister Winston Churchill. He also took part in the Roosevelt-Churchill meetings at Casablanca and Cairo and the Big Three conferences at Teheran and Yalta.

In late January 1945, Mr. Hopkins conferred with Gen. Charles de Gaulle in Paris on the

European situation; went on to Rome for a brief talk with Pope Pius. He entered Mayo Clinic in February for treatment of a recurrent nutritional ailment. By late May 1945, however, he was sufficiently recovered to go to Moscow on a mission for President Truman. His conversations with Marshal Stalin during his Moscow visit are said to have broken the deadlock on procedural issues at the San Francisco Conference and paved the way for solution of the Polish question. This marked his second mission to Moscow, his first having been made in July 1941, shortly after the German attack on Russia. A few days after he resigned his government post, Mr. Hopkins accepted a position in private industry. In September, he was awarded the Distinguished Service Medal for the performance of "services of outstanding value to the United States from December 1941 to July 1945."

HOPS. Three states, Washington, Oregon and California, produce the commercial hop crop of the United States. In 1945 these states yielded a total of 55,810,000 pounds, compared with 47,695,000 pounds in 1944 and a 1934–43 average crop of 39,240,000 pounds. In 1945, Washington produced 21,060,000 pounds; Oregon, 19,900,000 pounds, and California, 14,850,000 pounds. Oregon led in production in 1944 and in the average production in 1934–43 with 17,112,000 pounds and 18,069,000 pounds respectively.

HORSE RACING. See SPORTS IN 1945.

HORTHY, Nicholas de Nagybanya: b. Kenderes, Hungary, 1868. Former regent of Hungary and virtual dictator from March 1920 until the Germans established a government of their own in Hungary in March 1944, Admiral Horthy was taken into protective custody by troops of the American Seventh Army at Weilheim, Bavaria, on May 1, 1945. According to a Paris dispatch, Horthy was not made a prisoner of war as he did not hold a field command at the time of his capture. During his regime, Hungary signed the Anti-Comintern Pact, and in November 1940, the three-power agreement with Germany, Italy, and Japan. On Dec. 13, 1941, his country declared war on the United States and Great Britain. In the First World War, Admiral Horthy commanded units of the Austro-Hungarian Fleet. He was elected governor regent of Hungary after the short-lived Communist revolution under Béla Kun.

HOSPITAL INSURANCE. See INSURANCE.

HOURS OF WORK. See LABOR CONDITIONS IN THE UNITED STATES.

HOUSE, Judson. See MUSIC—*Necrology.*

HOUSING. In October 1945, wartime restrictions on new residential construction were removed. After nearly four years, controls were lifted on the size, type, price range, and quantity of new housing. In addition, priorities were no longer necessary for obtaining construction materials.

To minimize the danger of inflation inherent in an uncontrolled building boom, the federal government instituted a program of strict controls over the prices of building components, government advisory service to prospective homebuyers, and joint industry-government co-operation to combat inflated building costs and real estate prices. Some government officials, including Price Administrator Chester Bowles, believed that this program did not go far enough toward curbing inflation, and urged that, in addition, definite ceilings be placed on the rents and sales prices of completed new homes.

Although many observers had predicted that a building boom of unprecedented size would result from the lifting of construction controls, no accurate statement could be made with respect to the rate and volume of construction that could be expected. Shortages in many essential building materials were one of the factors holding up immediate resumption of building activity; however, it was expected that there would be adequate supplies of all such materials by the first of the new year.

Estimates of the probable postwar housing need have ranged from 300,000 to 2,000,000 new dwellings per year for the first 10 postwar years. It is generally agreed that at least 1,000,000 to 1,250,000 houses must be built annually during this period, if basic housing requirements are to be met. The general housing need was everywhere reflected in critical housing shortages, which added to the problems of returning veterans and complicated the question of clearing urban slums and blighted areas.

Housing Legislation.—The most important legislative development of the year was the comprehensive housing bill introduced by Senators Wagner and Ellender on August 1. At the time of its introduction Senator Taft submitted to the Senate Committee on Postwar Economic Policy and Planning the report of its Subcommittee on Housing and Urban Redevelopment, of which he is chairman. The bill and the report conformed in most respects.

The Wagner-Ellender Bill outlines general housing policy under a section titled "American Housing Objectives." These objectives cover the volume of investment and employment in housing enterprise; the need to increase the total housing supply to eliminate current deficiency and provide for national growth with special emphasis upon the needs of returning veterans and their families; the encouragement of home ownership; replacement of slums and other substandard areas; systematic improvement of residential neighborhoods as the core of better city planning and redevelopment of American communities; conservation of the existing housing supply.

Under separate titles the bill describes the governmental machinery required to perform research and local market analysis, urban redevelopment, middle-income housing ("yield insurance" plan under FHA), low-rent public housing (four-year program to provide approximately 500,000 units), rural housing, disposition of federally-owned permanent war housing, and to make permanent the wartime consolidation of federal housing agencies now assembled under the National Housing Agency.

The Wagner-Ellender Bill and the report of the Sub-committee on Postwar Housing and Urban Redevelopment agree that the objective of a national housing policy is to provide adequate housing for the entire people; that this is primarily the responsibility of private enterprise, which should be assisted to do the job; but that direct public action is necessary to serve that part of the housing market in which private enterprise cannot operate at a profit.

Influential congressional committee reports issued during the year included a report of the House Committee on Postwar Economic Policy and Planning, on July 5, by Chairman Colmer, entitled "Postwar Public Works and Construc-

tion." It emphasized the position of the construction industry in the national economy and favored continued federal aid to public housing.

By the end of the year, there were 40 states with legislation authorizing the creation of local housing authorities to construct and operate low-rent housing in co-operation with the federal government. Nevada in 1945 became the fortieth state. In this year also, Alaska passed enabling legislation permitting its cities to participate in the federally-aided low-rent housing program.

In preparation for postwar building expansion, several states amended their housing enabling legislation to facilitate financing operations and to broaden the scope of local programs to include rural housing. New York State expanded its state-aided low-rent housing activities and in Illinois and Pennsylvania, new legislation indicated that state-aided low-rent housing programs might be initiated.

Urban Redevelopment.—In 1945, ten additional states adopted urban redevelopment legislation, extending the power of eminent domain to the assembly of sites for slum clearance and private redevelopment. Twenty states in all now have such legislation: Alabama, Arkansas, California, Colorado, Connecticut, Florida, Illinois, Indiana, Kansas, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New York, Tennessee, Pennsylvania, Wisconsin.

In some states, private redevelopment corporations operate directly under local legislative bodies or the state housing board. In others, specially-created local public redevelopment agencies supervise the corporations and assemble the land. Still other laws permit local housing authorities to acquire land for private redevelopment.

The problem of writing down the high cost of blighted urban land is not fully provided for in urban redevelopment legislation thus far adopted. However, looking toward the time when federal loans and grants may be made available to local agencies for this purpose, most of the recent legislation permits local redevelopment agencies to accept such aid. Also, five states provide a subsidy for redevelopment corporations in the form of tax freezing in varying degrees.

Introduction of several urban redevelopment bills for the District of Columbia renewed the controversy over the pros and cons of public housing, both in and out of Congress. Special Congressional committees had, since 1943, been considering District of Columbia urban redevelopment and housing legislation. Early in the year, the National Industrial Conference Board, in an analysis of hearings conducted in 1944 by one such committee, declared that private builders could build low-rent housing at costs lower than those achieved by government. The report was widely circulated, refuted, and defended; and although the debates that followed applied only to Washington, they were generally considered a preview of the kinds of questions that might come up elsewhere in the country.

New York was the only city that had concrete plans for urban redevelopment ready for construction at the end of the war. The site for the Metropolitan Life Insurance Company's Stuyvesant Town had already been acquired and the Metropolitan and a number of savings banks had announced plans for other large-scale redevelopment projects. However, other cities as well were preparing to implement their redevelopment legislation, namely: Chicago, Philadelphia, Baltimore, St. Louis, Kansas City (Missouri), Detroit, Memphis, and Minneapolis.

Other Outstanding Events and Trends.—In the planning, design and construction of housing there has been continued perfection of mass production techniques, improvement in the quality and use of new building materials; interest in prefabrication and mass marketing; large scale planning of complete neighborhood units. Many war-stimulated industrialists and companies contemplate entering the low-cost housing fields, among them Henry Kaiser and Beech Aircraft.

Labor took an increased interest in housing and the legislative proposals affecting policy. The CIO created a Housing and Community Development Department to co-ordinate its interests in the field. A special activity of the CIO has been to promote the mutual home ownership plan (a co-operative approach).

One of the many problems facing the federal government is the disposition of thousands of temporary war-built units in the best interests of the nation and the affected localities. The necessity for meeting the needs of servicemen's and veterans' families was only partially and temporarily solved by an amendment to the Lanham Act which permitted occupancy of temporary war housing by families in a "distressed" state by reason of "eviction, low income, or otherwise." This made apparent the necessity for improving the housing provisions in the GI Bill of Rights.

Public and private housing leaders, threatened with inflated housing sales costs, vigorously sought devices which would "hold the line" on costs, but not restrict construction volume. Raymond Foley, the new FHA Commissioner appointed in July, was particularly concerned with this problem as it related to an expanded FHA program to assist private building. President Truman focused attention on housing in his 21-point reconversion program. War Mobilization Director John W. Snyder appointed Hugh Potter, prominent Texas private developer, to the position of construction co-ordinator, in an attempt to expedite an extensive postwar housing program. Secretary of Commerce Henry Wallace announced the creation of a Construction Division in the Bureau of Foreign and Domestic Commerce.

The Committee on Hygiene of Housing of the American Public Health Association, as a result of a four-year effort, announced a new appraisal technique to measure quality and quantity of housing. This technique is expected to be an improvement over former methods and to add substantially to our knowledge of the existing housing inventory. See also ARCHITECTURE.

ELLIS ASH,
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HUMAN NUTRITION. See AGRICULTURAL RESEARCH ADMINISTRATION.

HUNGARY. A country in central Europe, east of Austria and west of Rumania. The area, as fixed by the Treaty of Trianon in 1920, was 35,875 square miles. With the assistance of Hitlerian Germany, Hungary subsequently took from Czechoslovakia, Ruthenia (q.v.) and part of Slovakia (1938–39); from Rumania, northern Transylvania (1940); and from Yugoslavia, the Banat (1941). These accessions of territory increased the area of Hungary to 61,891 square miles, but all of them were lost with the defeat of Germany and her satellites in 1945. The population in 1938 prior to the first transfer of Czechoslovakian territory totaled 8,991,179; with frontiers temporarily enlarged, Hungary's inhabitants were esti-

HOUSING

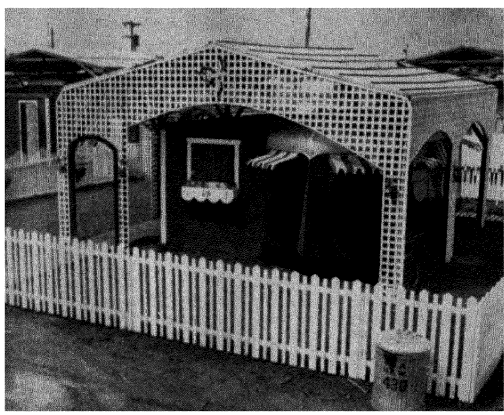


Courtesy Robley L. Johnson, Official Photographer, Hanford Engineer Works

An engineer and his wife have breakfast coffee in the kitchen of their prefabricated house, erected at Richland, Wash., by the Hanford Engineer Works.

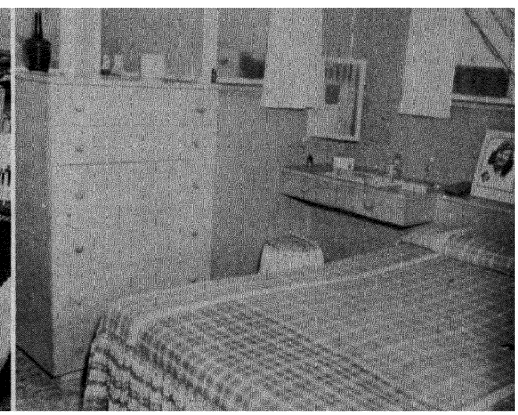


The cozy living room of the same prefabricated house. The curtains are made of sheets dyed yellow.



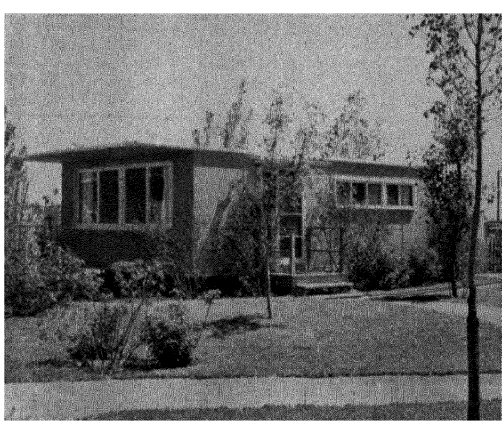
Courtesy *This Week* magazine

A trailer home made by adding a room to trailer and erecting a roof over it.



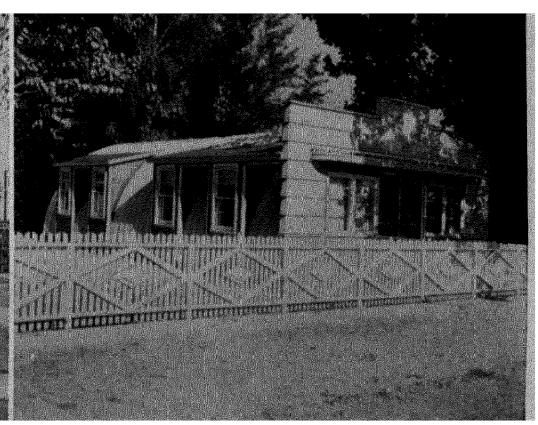
Courtesy Robley L. Johnson

The engineer and his wife have an attractive bedroom with adequate space in their prefabricated home.



Courtesy Robley L. Johnson

The exterior view of the prefabricated house, the interior of which is shown above.



Courtesy *This Week* magazine

Quonset hut with its dormer windows, false front and white picket fence, makes a cozy cottage.

mated in 1942 to number 13,644,000. The capital is Budapest (pop. 1943, 1,216,726).

Government.—Becoming an independent state after the First World War, Hungary chose the status of a monarchy but left the throne unfilled. On March 1, 1920, Admiral Nicholas Horthy de Nagybanya was elected regent, and he continued to exercise the royal prerogatives until October 16, 1944, when he resigned under pressure from the Nazis. The bicameral legislature enacted in 1937 release of the regent from responsibility to it; and in 1943, by direction of the regent, Parliament was adjourned sine die. When hostilities ceased in 1945, the country was being administered by a provisional government under the auspices of the Soviet Union.

The budget for the calendar year 1944, as announced by the finance minister, showed estimated revenue of 5,866,700,000 pengös, against expenditure of 6,147,000,000 pengös; service of the public debt required 263,000,000 pengös in 1943. One pengö equalled $0.1977 in U.S. money in 1941, but it dropped disastrously in 1945, by October 13 being 20,000 to the U.S. dollar. Between Nov. 30, 1944, and Sept. 30, 1945, the Hungarian note circulation grew from 10,670,000,000 to 41,920,000,000, and as inflation increased the printing presses were turning out 1,000,000,000 pengös each day.

Education.—Primary education is free and compulsory for all children from 6 to 12 years of age in day schools, and thereafter for three years in continuation schools. Prior to the Second World War, elementary schools in Hungary numbered 8,103, with 1,104,916 pupils and 23,215 teachers. There were also numerous agricultural and vocational schools, and 263 middle schools with 79,435 pupils. The state also maintained universities at Budapest, Pécs, and Debrecen; the József Nádor Technical and Economic University was a consolidation of certain high schools giving instruction in those fields. Theological seminaries numbered 29 (24 Roman Catholics, 1 Greek Catholic, 3 Protestant, and 1 Jewish). Jewish enrollment in the higher schools and universities was restricted to 5 per cent of the total number of students.

Religion.—About two thirds of the Magyars are Roman Catholics, and the remainder mostly Calvinist. At the 1930 census the Roman Catholics numbered 5,634,003; Helvetian Evangelicals, 1,813,162; Augsburg Evangelicals, 534,165; Greek Catholics, 201,093; Greek Orientals, 39,839; Unitarians, 6,266; and Jews, 444,567. Moderate anti-Jewish laws were adopted in 1938, and rigid anti-Semitic measures were effected in 1940; violent persecution of the Jews commenced in 1944.

Production.—Agriculture is the basis of Hungarian life, some areas being among the most fertile in the world. About 51.8 per cent of the entire population of Hungary were engaged in agricultural work prior to the war, as compared with 30.1 per cent in industrial and commercial activities. Arable land occupied 60.2 per cent of the total area; meadowland and rough pasture, 17.9 per cent; and forests, 11.8 per cent. Next to Russia, Hungary was the biggest wheat exporter in Europe. Excluding annexed areas, the 1938–39 production (in quintals) of wheat was 30,781,736; corn, 23,345,394; potatoes, 22,930,404; sugarbeet, 11,605,255; rye, 8,637,385; barley, 7,895,528; and oats, 3,659,137 quintals.

Hungary's bauxite deposits are of prime importance (output of 500,193 tons in 1939). Other minerals include coal, lignite, and iron. Petroleum production in 1939 (January-June) was 41,850 tons. Iron and steel are made, and other industries include wheat milling, sugar refining, and distilling. The Tokay wines of Hungary have a high reputation in Europe. Exports of all products in 1943 had a value of 1,288,800,000 pengös, and imports amounted to 1,147,200,000 pengös; Germany was Hungary's best customer, Italy ranking second and Great Britain third.

Transportation and Communication.—The length of railways in Hungary proper was 6,307 miles in 1938–39. The greater part was operated by the state. Railway lines in northern Transylvania increased the Hungarian network by some 1,460 miles. The telegraphs and telephones are owned by the government. There were 3,625 miles of state roads, 14,743 miles of municipal roads, and 5,273 miles of lesser roads, or a total of 23,641 miles of highways.

Principal Events

On Oct. 15, 1944, Admiral Nicholas Horthy, regent of the country, asked the Allies to grant Hungary an armistice. But three hours later a new pro-German government under Ferenc Szalasi, leader of the Fascist Arrow Cross organization, had taken over in Budapest. A reign of terror swept the capital and bloody clashes were staged throughout the country. Horthy, his family, and close associates, were, the German press reported, "enjoying the right of asylum" somewhere in the Reich. By early November 1944, Russian troops were within a few miles of panic-stricken Budapest, in a four-pronged offensive; on November 11, Col. Gen. János Vörös, chief of the Hungarian Army General Staff, crossed over to the side of the Red Army and urged his country in the name of Horthy to refuse to defend Budapest. The Provisional National Assembly, consisting of delegates elected in liberated territory between December 13–20, met at Debrecen on December 21, to form a government. Prof. Béla Zsedenyi was elected president of the assembly and Gen. Béla Miklós, premier. On December 29 war was declared on Germany, the premier promising that all resources would be mobilized against Germany; anti-Jewish laws were abolished, land reforms were to be introduced, and private enterprise safeguarded as the basis of economic life. The principal terms of the armistice signed in Moscow on Jan. 20, 1945, between the provisional Hungarian government and the Soviet Union, the United Kingdom, and the United States, on behalf of the United Nations, were: (1) Hungary undertook to disarm German armed forces and to make available such land, sea, and air forces as might be specified for service under the Allied (Soviet) High Command. (2) All Hungarian troops were to be evacuated from the territory of Czechoslovakia, Yugoslavia, and Rumania. (3) Hungary undertook to return all valuables and materials removed from United Nations territory and to make good losses caused to the Soviet Union, Czechoslovakia, and Yugoslavia by military operations. (4) The Vienna Arbitration Award of Nov. 2, 1938, and the Vienna Award of Aug. 30, 1940, were declared null and void. (5) And lastly, Hungary agreed to pay $300,000,000 reparations in six years. Following a 50-day siege, the Red Army completed the conquest of Budapest on Feb. 13, 1945. In the middle of May the government returned to Budapest. Under the land reform, passed on March 17, all estates of over 1,000 katastraljoch (one katastraljoch is about 1.42 acres) were to be seized and others reduced to 100 joch per owner; but

the Roman Catholic Church and its institutions were to be allowed to retain 100 joch each. Imré Nagy, minister of agriculture, and Gábor, minister of public welfare, represented the Communists in the government, while the conservative circles gathered around Count Teleki, minister of education. Other parties in the new Hungary were: the Social Democratic Party; two agrarian parties (the smallholders and a newly formed party of hitherto landless peasants called the National Peasants Party); and two middle class parties (Liberal and Republican). It was reported in September that Soviet troops were preparing to evacuate Hungary.

What are said to have been the first "wholly free" national and municipal elections ever held in Hungary took place Nov. 5, 1945, and resulted in a decisive majority for the conservative Small Landholders Party as against the Socialists and Communists. The result had been forecast on October 7, when the Small Landholders scored a decisive victory over the combined Socialist-Communist ticket in the Budapest municipal elections. Early returns gave the Small Landholders 58 per cent of the more than 4,000,000 votes cast in the November 5 elections; the Social Democrats about 22 per cent, and the Communists about 14 per cent. Among the prominent individuals elected to Parliament were Count Michael Károlyi, former premier; Zoltán Kodály, composer; Gen. Béla Miklos, retiring premier; and Albert von Szent-Gyorgyi, Nobel Prize winner for his work on vitamins. The new Parliament will number approximately 300 members, since every 12,000 votes elects one deputy.

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HYGIENE. See PUBLIC HEALTH SERVICE, U.S.

ICELAND. Geographically, an island in the North Atlantic Ocean; politically, an independent republic. Located on the southern border of the Arctic Circle, 600 miles northwest of Great Britain, its area is 39,709 square miles, and its population on Dec. 31, 1943, was 125,915. The Althing (Parliament) proclaimed Iceland an independent republic on June 17, 1944, and the same day elected for a one-year term, Sveinn Björnsson, the country's first president. The capital is Reykjavik (pop. 42,815). Other large towns are Akureyri (5,842), Hafnarfjordhur (3,944), and Vestmanaeyja (3,524).

Government.—Under the president, executive power is vested in a Cabinet of six ministers headed by a prime minister. The Althing (Parliament) of 52 members is divided into an upper house and a lower house. The former is composed of one third of the members elected by the entire Althing in common sitting. The remaining two thirds of the members form the lower house. The Althing must meet on February 15 each year. Budget bills must be laid by the government before the two houses in joint session; all other bills can be introduced in either house. Ministers have free access to both houses but can vote only in the house of which they are members. Olafur Thors, leader of the Independent Party, became prime minister Oct. 22, 1944.

Education and Religion.—Elementary education is free and compulsory from the age of 7 to 14; there are 238 primary schools, with 8,709 pupils. Besides continuation schools for those going to work at the age of 14, there are several day high schools, 2 schools of agriculture and a school of navigation. The University of Iceland is located at Reykjavik.

The majority of the people are members of the Evangelical Lutheran Church, which is supported by the state. There is religious freedom, no civil disabilities being attached to those of other faiths.

Finances.—The budget estimates for the year 1945 called for revenue of 108,177,878 kronur and an expenditure of 100,211,675 kronur. The public debt on Dec. 31, 1943, amounted to 65,746,000 kronur, of which 13,185,000 kronur was on behalf of banking and mortgage institutions; the foreign debt was 31,123,000 kronur, and the internal debt amounted to 34,623,000 kronur.

Production.—According to the census of 1930 36.5 per cent of the population of Iceland lives on agriculture; 22.4 per cent work in the fishing industry; 15.1 per cent work in industries; and 16.2 per cent in commerce and navigation. The fisheries are principally for cod and herring, but sole, flounder, haddock and halibut also are of importance. In 1942, 335,157 metric tons of fish were caught. Stock raising is of importance; in 1943 there were 618,000 sheep, 62,000 horses, 40,000 cattle, and 1,700 goats. Hay is the principal crop; from both cultivated and uncultivated land, in 1943 the hay crop amounted to 3,928,000 hundredweight. In the same year, 110,000 hundredweight of potatoes and 7,000 hundredweight of turnips were raised. The principal industries are the curing and salting of fish, the rendering of fish and animal oils, and canning. Woolen cloth and blankets are manufactured, as well as shoes and gloves; miscellaneous manufactures include oilskins, steel barrels, fishing lines and nets. Mineral resources are few and lack exploitation; a low grade of coal is extracted on a small scale. Boiling water from groups of geysers is brought to Reykjavik in concrete pipes and used to heat buildings and horticultural nurseries. Iceland's waterpower has been estimated at 4,000,000 horsepower, but only about 25,000 horsepower has been harnessed.

Foreign Trade.—Besides fish and fish products, Iceland exports mutton, wool, sheepskins, furs and eiderdowns; among the chief imports are automobiles, machinery, coal, metal products, food stuffs, textiles and clothing, wines and spirits, footwear, and petroleum products. During the Second World War most of Iceland's markets on the continent of Europe were closed, the bulk of the trade being with Great Britain and to a lesser extent with the United States. In 1943 exports were valued at 233,246,000 kronur, and imports at 251,301,000 kronur.

Communications.—There were some 2,700 miles of highways before the war. The country had 4,106 registered automobiles in 1944, about

half of them trucks. Telegraph and telephone lines have a length of some 10,000 miles, and external telecommunications are by cable and wireless. The merchant marine in 1943 consisted of 443 vessels with a combined tonnage of 39,315 gross tons.

Principal Events.—The kingdom of Iceland, an independent and sovereign state, concluded with Denmark on Dec. 1, 1918, a 25-year Treaty of Union providing for a joint monarch for the two countries. However, on April 10, 1940, the day after the occupation of Denmark by Germany, which event had prevented the king from exercising his authority, the Althing vested in the Cabinet the royal functions of Christian X in Iceland. On May 17, 1941, the Althing gave notice that the Treaty of Union would not be renewed upon its expiry in 1943, and provided that meanwhile supreme power in Iceland was to be entrusted to a regent, elected annually.

British troops were landed in Iceland on May 10, 1940, to forestall seizure of the island by the Germans; they were followed by United States forces on July 7, 1941; and the last of the British garrison was withdrawn from the country by Nov. 15, 1942.

By a referendum during May 20–23, 1944, at which 98 per cent of the electorate voted, the people overwhelmingly favored severance of ties with Denmark and establishment of a republic. In accordance with this decision, on June 17, the Althing formally abrogated the Treaty of Union and unanimously passed a bill declaring the country a republic. Sveinn Björnsson, who had been serving as regent since the office was established in 1941, was elected by the Althing the same day as first president of the republic of Iceland.

President Björnsson visited the United States in August in company with Vilhjalmur Thor, Iceland's foreign minister. At a press conference the Icelanders declared in answer to questions asked by journalists regarding retention of the bases established by the United States on Iceland that no such proposals had been made to them. Foreign Minister Thor remarked that "we did not establish our republic in order to become less independent. We intend to own our country, all of it, and without any foreign interference. . . We regret any implications claiming the necessity for the United States to acquire peacetime military bases in Iceland."

The government which had been formed by Prime Minister Björn Thordarson in 1942, resigned on Sept. 16, 1944, after the Althing had refused to accept the Cabinet's proposals for control of inflation. The following month a new government was formed by Olafur Thors, leader of the Independent Party, who in addition to assuming the premiership, became minister for foreign affairs in place of Vilhjalmur Thor.

IDAHO. Mountain state, United States; admitted to the Union July 3, 1890. Poulation (1940): rural, 348,165; urban, 176,708; total, 524,873. Land area, 82,808 square miles, divided into 44 counties. Chief cities, with 1940 populations: Boise City, the capital, 26,130; Pocatello, 18,133; Idaho Falls, 15,024; Nampa, 12,149; Twin Falls, 11,851.

Chief State Officers, 1945.—Governor, Charles C. Gossett; lieutenant governor, Arnold Williams; secretary of state, Ira Masters; treasurer, Ruth Moon; auditor, Ernest Hanson; attorney general, Frank Langley.

Judiciary.—Chief justice of Idaho's Supreme Court, James F. Ailshie; associate justices, Edwin Holden, Alfred Budge, Raymond L. Givens, Bert H. Miller.

Legislature.—The state legislature (Senate, 44 members; House of Representatives, 59) convenes biennially in odd years on the first Monday after the first day of January.

Education.—Public elementary schools (1943–44, latest school year reported), 1,012; teachers, 2,615; pupils, 76,696; average yearly salary of elementary school teachers, $1,171. Public junior high schools, 20; teachers, 192; students, 8,911. Public senior high schools, 172; teachers, 1,062; students, 25,724; average yearly salary of junior and senior high school teachers, $1,612. Education in Idaho is compulsory for all children between the ages of 8 and 18, inclusive. There are 3 teacher training schools which together with the University of Idaho's Southern Branch at Pocatello receive financial aid from the state. Total state appropriation for education (1943–44), $1,830,000; appropriation by cities and counties, $2,742,756.24.

Finances.—Following is a statement of Idaho's finances for the fiscal year 1944–45, furnished by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$20,329,816.22
Receipts, 1944–45	38,547,775.05
Total	$58,877,591.27
Disbursements, 1944–45	45,275,644.42
Balance, beginning of fiscal year 1945–46	$13,601,946.85

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	1,823	1,581	1,421
Oats (1,000 bu.)	6,239	7,308	6,764
Wheat (1,000 bu.)	24,779	30,309	32,340
Barley (1,000 bu.)	7,580	12,728	12,384
Rye (1,000 bu.)	93	96	112
Sugar beets (1,000 short tons)	789	618	837
Peas, dry field (1,000 bags)	1,117	2,672	1,652
Hay:			
Alfalfa (1,000 tons)	1,874	1,814	1,855
Clover and timothy (1,000 tons)	168	195	191
Tame (1,000 tons)	2,184	2,148	2,191
Wild (1,000 tons)	134	145	162
Beans, dry edible (1,000 bags)	1,731	2,088	1,643
Potatoes (1,000 bu.)	28,910	36,675	43,650
Apples (1,000 bu.)	2,914	1,900	2,465
Peaches (1,000 bu.)	210	442	414
Pears (1,000 bu.)	59	69	65
Cherries (tons)	2,275	2,390	2,460

ILLINOIS. East North Central state, United States; admitted to the Union Dec. 3, 1818. Population (1940): rural, 2,087,591; urban, 5,809,650; total, 7,897,241. Land area, 55,947 square miles, divided into 102 counties. Chief cities, with 1940 populations: Chicago, 3,396,808; Peoria, 105,087; Rockford, 84,637; East Saint Louis, 75,609; Springfield, the capital, 75,503; Oak Park, 66,015; Evanston, 65,389; Cicero, 64,712.

Chief State Officers, 1945.—Governor, Dwight H. Green; lieutenant governor, Hugh W. Cross; secretary of state, Edward J. Barrett; treasurer, Conrad F. Becker; auditor, Arthur C. Lueder; attorney general, George F. Barrett.

Judiciary.—Chief justice of the state supreme court, William J. Fulton; associate justices,

Charles H. Thompson, Walter T. Gunn, June C. Smith, Francis S. Wilson, Loren E. Murphy, Clyde E. Stone.

Legislature.—The state's General Assembly (Senate, 51 members; House of Representatives, 153) convenes biennially on the first Wednesday after the first Monday in January.

Education.—Public elementary school districts (1944), 10,009; teachers, 23,818; pupils, 848,017. Public senior high schools (1944), 861; teachers, 10,200; students, 320,569. Average yearly salary of all school teachers, $1,430. Education in Illinois is compulsory for all children between the ages of 6 and 16, inclusive. There are 5 state supported teacher training schools in Illinois. Total state appropriation for education (1944), $15,933,000.

Finances.—The following statement of Illinois' finances for the fiscal year 1944–45 was supplied by Conrad F. Becker, state treasurer:

Cash balance in treasury, beginning of fiscal year 1944–45	$ 628,502,809.28
Receipts, 1944–45	374,683,194.22
Total	$1,003,186,003.50
Disbursements (warrants paid), 1944–45	268,013,781.99
Cash balance, beginning of fiscal year 1945–46	$ 735,172,221.51

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Production Preliminary 1945
Corn (1,000 bu.)	349,054	403,695	413,345
Oats (1,000 bu.)	118,622	101,984	165,216
Buckwheat (1,000 bu.)	103	82	112
Wheat (1,000 bu.)	33,206	24,632	27,550
Barley (1,000 bu.)	2,983	1,500	1,096
Rye (1,000 bu.)	1,012	759	796
Flaxseed (1,000 bu.)	196	40	28
Hay:			
Alfalfa (1,000 tons)	1,024	987	1,193
Clover and timothy (1,000 tons)	1,219	1,639	1,483
Tame (1,000 tons)	3,601	3,448	3,724
Soybeans for beans (1,000 bu.)	39,010	71,400	73,062
Sweet potatoes (1,000 bu.)	358	385	352
Potatoes (1,000 bu.)	3,226	1,800	2,940
Apples (1,000 bu.)	3,162	2,418	2,623
Peaches (1,000 bu.)	1,239	1,470	1,638
Pears (1,000 bu.)	517	335	378
Grapes (tons)	4,720	3,700	3,600

ILLUMINATION. See ELECTRICAL AND ALLIED DEVELOPMENTS OF 1945.

IMMIGRATION, EMIGRATION AND NATURALIZATION. The war profoundly affected the pattern of migration and naturalization, and the end of hostilities has witnessed a notable change in the direction of the trend of both immigration and naturalization. Whereas stringent wartime restrictions resulted in a sharp reduction of travel, there has been already a relaxation of travel control and an accompanying acceleration in the movement of persons to and from the United States.

In contrast to steadily increasing migration, naturalization decreased in 1945 after reaching a peak the preceding year. Naturalization was significantly affected during the war years when United States citizenship took on added meaning and became an eagerly sought privilege. Because of this fact and because aliens in the United States had been subject to a number of important disadvantages in participating in the nation's war effort, the process of absorbing aliens through naturalization was greatly augmented.

As a consequence of reduced immigration and increased naturalization, together with the normal complement of deaths and departures, the alien population of the United States dropped from five millions at the time of the alien registration conducted during the latter part of 1940, to approximately three millions in 1945.

Immigration and Emigration.—During the fiscal year ended June 30, 1945, 38,119 immigrants were admitted to the United States. This figure represents an increase of 34 per cent over immigration during 1944. Of this number only 11,623 were quota immigrants as compared with the permissible annual quotas totaling 153,879 that may be admitted under the Immigration Act of 1924. In addition, 26,496 nonquota immigrants were admitted. These totals were somewhat higher than those for the preceding two years.

The newly arrived quota immigrants aggregated but 7.5 per cent of the established quotas; and, except for the Chinese with a quota of 105, no nationality exhausted its quota during the year. For the fourth consecutive year, nonquota immigration exceeded quota immigration. Of the 24,496 nonquota immigrants, 22,770 were admitted as natives of nonquota countries (chiefly Canada and Mexico). The remainder was made up of members of particular groups that are exempt from quota restrictions, such as alien wives and children of United States citizens, alien husbands married to United States citizens prior to July 1, 1932, and students.

During 1945, 93,362 aliens departed from the United States, of whom 7,442 were emigrants—aliens who have lived in the United States a year or longer and who are departing for a stay of at least a year.

The table below indicates the variations in immigration and emigration during the past five years.

A significant consideration with regard to transportation and immigration is the substantial increase in air travel to designated inland points, as well as to seaports and land border ports. The number of arrivals by plane advanced from 25,000 in 1935 to 251,000 in 1944, and rose to 400,000 in 1945. In the latter year approximately 65 per cent of all passengers arriving at seaports traveled by air. Although the increase in air travel was to some extent undoubtedly a result of the war, it is also doubtless an indication of a vast expansion to be expected in this means of transportation as these facilities are diverted to civilian use.

Because of the critical shortage of manpower in the United States, new legislation and regulations were adopted to make possible the tem-

ADMISSIONS AND DEPARTURES OF ALIENS, YEARS ENDED JUNE 30, 1941–1945

	1941	1942	1943	1944	1945
Aliens admitted	151,784	111,238	104,842	142,192	202,366
Immigrant	51,776	28,781	23,725	28,551	38,119
Quota	36,220	14,597	9,045	9,394	11,623
Nonquota	15,556	14,184	14,680	19,157	26,496
Nonimmigrant	100,008	82,457	81,117	113,641	164,247
Aliens departed	88,477	74,552	58,722	84,409	93,362
Emigrant	17,115	7,363	5,107	5,669	7,442
Nonemigrant	71,362	67,189	53,615	78,740	85,920

porary importation of alien laborers. These workers were generally imported under agreements with nearby countries which regulated the terms of their stay and the conditions of their employment. Of these laborers imported, there remained in the United States as of June 30, 1945: 135,680 from Mexico, 27,082 Jamaicans, 5,853 Bahamians, 5,700 Barbadians, 1,106 Newfoundlanders, and 916 British Hondurans. With the end of the war, these laborers are gradually being returned to their homelands.

Naturalization.—The number of persons admitted to United States citizenship during the fiscal year of 1945 was 238,450. This figure represents a 46 per cent decrease in comparison with the preceding year's 441,979 naturalizations, the largest number recorded in any single year since 1907, when consolidated statistical records of naturalization were inaugurated. The naturalization figures for the past two years may be compared with the average of 151,000 naturalizations granted during each year of the ten-year period 1931 through 1940. At the same time, it should be noted that declarations of intention to become a citizen dropped to the lowest point on record, with 31,195 declarations filed in 1945, as compared with 42,368 in 1944, 115,664 in 1943, and an annual average of 136,947 for the decade ending in 1940. The drop in the number of declarations filed and the decrease in the number of naturalizations may be attributed to the decrease in immigration—only 699,000 immigrants have been admitted in the last 15 years; to the elimination during the past three years of accumulated arrearages of naturalization cases pending; and to the fact that many of the remaining aliens are in the upper age brackets and possibly feel that the requirements for naturalization are too difficult to meet.

Among those who were naturalized during the fiscal year 1945 were 22,717 noncitizen members of the armed forces of the United States who were admitted to citizenship under special facilitating legislation. Of these persons, 5,666 were granted naturalization overseas. This procedure of naturalization abroad, which for the first time in history authorized the award of naturalization by administrative officials, was carried out by designated representatives of the Immigration and Naturalization Service, including some officers of the Department of State.

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INCOME TAX LAW, New. Effective Jan. 1, 1946, the Congress, on July 20, 1945, passed, and President Truman on August 4 signed an act providing for the first major reduction in federal taxes since 1929. Under the new law, taxes on all individual incomes will be reduced, but the principal beneficiaries will be the corporations, and about 12,000,000 persons in the low income group who will be excused entirely from the payment of such taxes.

The most outstanding feature of the new law is the repeal of the 85.5 per cent excess profits tax on corporations. The law further reduces the regular corporation income tax from 40 per cent to 38 per cent on corporations with net profits in excess of $50,000. These, together with other changes, will reduce the federal taxes that business will have to pay by an estimated $3,136,000,000.

Reductions in taxes imposed on individual incomes are estimated to total $2,644,000,000. These reductions range from 7 per cent on a $1,000,000 income to the complete elimination of all income tax payments by persons who, under the existing law, pay only the 3 per cent normal tax levied on all net income above $500.

Under the law in effect in 1945 no exemptions for dependents were permitted in order to arrive at the normal tax net income though the individual taxpayer was entitled to a personal exemption of $500. However, when it came to arriving at a taxpayer's net income subject to surtax, the taxpayer was permitted to deduct not only $500 for himself but an additional $500 for each dependent. The new law makes these individual surtax exemptions—$500 for the taxpayer and $500 for each dependent—applicable to the normal tax. Under the new law, therefore, a married man will pay no income tax until his net earnings exceed $1,000, and a married man with one child will pay no tax until his net income exceeds $1,500. It is estimated that these exemptions of $500 for each dependent will result in the payment of no income tax by at least one-fourth of 48,000,000 individuals who paid income taxes under the law in effect in 1945.

Individual taxpayers will benefit by a reduction of 3 percentage points from each surtax bracket. This means that in the first surtax bracket the tax will be 17 per cent instead of 20 per cent, and in the second bracket the tax will be 19 per cent instead of 22 per cent, and so on. These changes will be reflected in the taxes withheld from pay envelopes, so that hereafter a married couple, without children, will not be subject to deduction until the weekly income exceeds $22, while the deduction from the salary of a single person making $50 a week will be $6.80 instead of $8.20. Furthermore, after a taxpayer has determined the normal tax and surtax on his income, he may then deduct 5 per cent of the total of the two.

Under the new law the existing $1,500 special tax-free allowance for officers in the armed forces is continued, and they are given three years in which to pay off back taxes in quarterly installments. Enlisted men are excused from the payment of taxes on service pay, and also have three years in which to pay off any accumulated back taxes from other sources.

Social Security taxes are frozen under the new law at 1 per cent instead of rising to 2½ per cent on both employer and employee as they were scheduled to do. The $5 use tax on motor vehicles and boats is repealed at an estimated loss to the government of $140,000,000 in revenue. However, the excise taxes (20 per cent) on furs, jewelry, and other luxuries, remains in effect, though there is a movement on foot in Congress to repeal them by July 1, 1946. They expire automatically six months after official declaration that the war has ended.

For income tax collected in fiscal year 1944–45 see under Internal Revenue.

INDIA. The central peninsula of southern Asia. Politically, in addition to the Indian Empire (see below), it comprises French India, Portuguese India, Bhutan and Nepal, the two last being independent states in treaty relations with the British government. The area of the peninsula of India is 1,655,143 square miles, and the population numbers 395,822,250.

The Indian Empire, indirectly or directly under British protection or rule, comprises territories governed by their rulers, with or without

the aid of ministers and councils, termed collectively the Indian States, and those areas subject to British law, which are known as British India. Since Jan. 1, 1877, British sovereigns have borne also the title of emperor (or empress) of India. The Indian Empire has an area of 1,581,410 square miles, and the population totals (1941 census) 388,997,955. The central government of India is also in treaty relationship with the rulers of Kuwait, Bahrein, Qatar, the Trucial States and Oman, maintaining political agents in those Arabian countries on the Persian Gulf.

The Indian States, which number 562, have varying degrees of internal autonomy, though posts and telegraphs, customs and (generally) currency, being matters affecting the Indian Empire as a whole, are administered by the central government. Administratively, the Indian States are grouped into 15 "States and Agencies," the latter being groupings of several small states. The combined area of the Indian States is 715,694 square miles and the populations at the 1941 census totaled 93,189,233. During recent years some of the groupings have been rearranged. Western India and Gujarat are now combined with Baroda; a new group termed Eastern States comprises Bengal, Chattisgarh, and Orissa; the Gwalior Residency has absorbed the former United Provinces; Cochin and Travancore are included in the Madras States Agency; and Punjab and Punjab Hill become the Punjab States Agency.

States and Agencies	Square miles	Population
Assam States	12,408	725,655
Baluchistan States	79,546	356,204
Baroda, Western India, and Gujarat States	53,482	9,217,868
Central India Agency	52,047	7,506,427
Eastern States	65,246	9,218,560
Gwalior Residency	27,768	4,934,629
Hyderabad State	82,313	16,338,534
Kashmir Residency	82,258	4,021,616
Kolhapur Residency and Deccan States Agency	10,870	2,785,428
Madras States Agency	10,757	7,991,647
Mysore Agency	29,458	7,329,140
North-West Frontier (States)	24,986	2,377,599
Punjab States Agency	49,521	6,594,198
Rajputana Agency	132,559	13,670,208
Sikkim	2,745	121,520
Total, states and agencies	715,964	93,189,233

British India comprises 11 provinces and six chief commissioners' provinces; the combined area is 865,446 square miles, and the population (1941 census) totaled 295,808,722. Each province is headed by a governor, who is aided by a council of ministers chosen from members of the elected provincial legislature; the chief commissioners' provinces are administered by the governor general, acting through chief commissioners appointed by him.

Provinces	Square miles	Population
Madras	126,166	49,341,810
Bombay	76,443	20,849,840
Bengal	77,442	60,306,525
United Provinces of Agra and Oudh	106,247	55,020,617
Punjab	99,089	28,418,819
Bihar	69,745	36,340,151
Central Provinces and Berar	98,575	16,813,584
Assam	54,951	10,204,733
North-West Frontier Province	14,263	3,038,067
Orissa	32,198	8,728,544
Sind	48,136	4,535,008
Chief Commissioners' Provinces:		
Ajmer-Merwara	2,400	583,693
Andamans and Nicobars	3,143	33,768
Baluchistan	54,456	501,631
Coorg	1,593	168,726
Delhi	574	917,939
Panth-Piploda	25	5,267
Total, British India	865,446	295,808,722

The People.—India contains a large number of races and castes, the latter being collections of families, or groups of families, bearing a common name and usually associated with a specific occupation. According to the census of 1931 (such returns for 1941 not being yet available), the chief races and castes were: Brahman, 15,207,277; Chamar, 12,195,156; Ahar, 14,170,032; Rajput, 10,743,091; Jat, 8,377,819; and Maratha, 6,113,061. In 1931 there were in India 155,555 British subjects, 12,579 persons of other European races, and 138,395 Anglo-Indians. An Anglo-Indian is one whose father, grandfather or other progenitor in the male line was a European.

Exclusive of dialects, 225 languages are spoken in the Indian Empire. The eight principal languages, and the numbers speaking them in 1931, comprise: Western Hindi, 71,547,000; Bengali, 53,469,000; Bihari, 27,927,000; Telugu, 26,374,000; Marathi, 20,890,000; Tamil, 20,412,000; Punjabi, 15,839,000; and Rajasthani, 13,898,000. Other languages widely spoken are Kanarese, Oriya, Gujarati and Malayalam. The lingua franca is Hindustani, a dialect of Hindi, while English is understood by many.

Religion.—Hindus constitute 655 per 1,000 of the total population of the Indian Empire, Muslims 236, Christian 16, Sikhs 14, Parsis 0.3, and Buddhists 0.6. The 1941 census showed the distribution of the population by communities, whereas previous censuses gave the distribution by religions. Distribution in 1941 was as follows:

	Indian States	British India	Total
Hindus	64,219,553	190,810,953	255,030,506
Muslims	14,990,925	79,398,503	94,389,428
Christians	2,834,119	3,482,430	6,316,549
Sikhs	1,526,350	4,165,097	5,691,447
Jains	870,914	578,372	1,449,286
Parsis	12,922	101,968	114,890
Buddhists	64,590	167,413	232,003
Jews	3,153	19,327	22,480
Tribes	8,728,233	16,713,256	25,441,489
Others	38,474	371,403	409,877

Education.—With only 12.9 per cent of the people living in towns (179,000,000 reside in villages having less than 2,000 population), education of the masses has progressed but slowly. According to the 1941 census, the percentage of literacy within the Indian Empire was 12.2 (as against 6.9 in 1931); for the Indian States it was 11.1 (6.6 in 1931), and for British India 12.5 (7.1 in 1931). Education in British India is controlled by Indian ministers of provincial governments; and recruitment of Europeans for the Educational Service has ceased since 1924. In British India, in 1941–42, there were 228,053 educational institutions, with a total enrollment of 15,993,187 students. General education was provided in 181,968 primary schools (with 12,018,726 pupils), 15,197 secondary schools (2,784,789 pupils), 338 arts and science colleges (119,731 pupils), and 15 universities (12,532 students). Special education was given at 11,691 special schools (with 446,287 pupils), 612 training schools (32,121 pupils), and 93 professional colleges (26,991 students); and there were 18,139 indigenous unrecognized institutions (with 552,010 pupils). Plans published in 1944 for postwar educational development aimed to provide every child in India with a minimum basic education. Compulsory attendance is required for children between the ages of 6 and 14, primary and middle school education being free. The government of India has assumed the cost of transportation, maintenance, and tuition fees for 1,500 students to be sent to the United

States for postgraduate work (500 men in each of the years 1945, 1946, 1947); at 40 different American institutions, in a wide range of subjects, the students will take courses lasting two or three years.

Cities and Towns.—The capital of the Indian Empire is New Delhi (pop. 64,855); Delhi, which comprises New Delhi, Shahdara and Cantonment, had a population (1941) of 521,849. The three largest cities, all of them ports, are Calcutta (pop. 2,108,891), Bombay (1,489,883) and Madras (777,481). Hyderabad (739,481), capital of the state of that name, is the largest city in the Indian States. Other large cities are Lahore (671,659), Ahmedabad (591,257), Cawnpore (487,324), Amritsar (391,010) and Lucknow (387,177).

Government.—The Government of India Act of 1935, legislation of the British Parliament, provided that the central government of the Indian Empire was to be a federal union of the Indian States and the provinces of British India, a federation which would come into being when a certain proportion of the rulers of the former had agreed to join. Provincial self-government as outlined in the act began in 1937, but negotiations with the rulers of the Indian States were suspended by outbreak of the Second World War in 1939. The governor general, or viceroy, is appointed by the king-emperor, usually for a term of five years; Field Marshal Viscount Wavell was appointed governor general Oct. 20, 1943. He is assisted by an Executive Council of 15 members, each responsible for a department of the administration and appointed by the crown; Indians hold all portfolios except those for War, War Transport, Finance, and Home. The Indian legislature comprises two houses—the Council of State and the Legislative Assembly. The Council of State, which has a life of five years, consists of 60 members, including 34 elected (one of whom, though technically nominated, is nominated as the result of elections held in Berar) and 26 nominated, of whom not more than 20 may be officials. The Legislative Assembly, with a life of three years, has 141 members, of whom 102 are elected (including, as in the case of the Council of State, one Berar member who, though actually elected, has technically to be a nominee); of the 39 nominated members, not fewer than one third are required to be nonofficials. Because of war conditions, the life of the Indian legislature was extended for a further 12 months from Oct. 1, 1944; elections for both the central and provincial legislative assemblies were ordered to be held, the former in November-December 1945, and the latter early in 1946.

The Indian States are governed by hereditary rulers (princes) who exercise varying degrees of control over internal affairs, under British suzerainty, and within certain limits maintain their own military forces; they have no relations with foreign powers. Neither the Indian legislature nor the provincial legislatures of British India can make laws affecting them; neither the Federal Court of India nor the chief courts of the provinces have jurisdiction in the Indian States; and since the Indian States are not British territory, their inhabitants are not British subjects but British protected persons. The Chamber of Princes, a consultative body, consists of 109 rulers of states who are members in their own right, and 12 rulers elected to represent 127 other states; in 1942 the Chamber of Princes stated its willingness to co-operate in framing a new constitution for an Indian federal union provided that the sovereignty and integrity of the Indian States was safeguarded.

The 11 provinces of British India have each a Legislative Assembly, and there are, in addition, legislative councils in Madras, Bombay, Bengal, United Provinces, Bihar and Assam. The Legislative Assembly of each province, unless sooner dissolved, continues for five years; the legislative councils are permanent bodies, one third of the members retiring every third year. Provincial legislators are elected by ballot, the franchise being based on a property qualification as measured by the payment of a prescribed minimum of land revenue, income tax, or municipal taxes; women vote and hold office on the same basis as men. The vote was exercised (1944) by 30,137,914 of the adult population, including 4,254,704 women. The electorates are arranged to give separate representation to the various races, communities and special interests within each province. The governor heading each province selects members of the provincial ministry from those legislators (including members of minority communities) likely to command the confidence of the legislature. Because of unwillingness to co-operate in the war effort, and the resignations of ministers affiliated with the All-Indian Congress Party, several of the legislatures were suspended, the governors, in those instances, administering the provinces through councils of advisers; in 1945, responsible self-government was continuing in 4 of the 11 provinces.

In 1945 an Indian, Sir Chandulal M. Trivedi, was appointed governor of the province of Orissa. He is the second Indian to be appointed permanent governor of a province of British India.

Political Parties.—The chief political parties in British India are the All-India Congress, the Muslim (Moslem) League, and the Hindu Mahasabha: minor parties include the National Liberal Federation, the Depressed Classes Federation, and the All-India Kisan Sabha (or Peasants' Union). Although not its president, Mohandas K. Gandhi is the recognized leader of the All-India Congress, Maulana Abul Kalam Azad being its president and Puandit Jawaharlal Nehru the secretary; Mohammed Ali Jinnah heads the Muslim League. Gandhi, who had been imprisoned in 1942, was released May 6, 1944 "solely on medical grounds." In June 1945, following the new offer of the British government (see *Principal Events*), all the members of the All-India Congress' working committee who, along with Gandhi, had been imprisoned in 1942, were released. This step was followed by the release of other Congress internees and the removal of the ban on the activities of the working committee.

Finances of British India.—The financial year 1944–45 was expected to close with a revenue deficit of Rs.155.7 crores (one crore being equal to 10,000,000 rupees). The total revenue estimates for 1945–46 amounted to Rs.353.74 crores, compared with Rs.356.88 crores for the preceding financial year, and the deficit in prospect was Rs.163.89 crores. Budget estimates of defense expenditure for 1945–46 amounted to Rs.394.23 crores and Rs.17.76 crores under the revenue and capital heads respectively.

Great Britain had a tremendous economic and financial stake in India at the end of the First World War, but in the intervening years this relationship has been virtually reversed. While In-

dia's sterling debt in 1939 had amounted to £352,000,000, by August 1945 it had been reduced to £664,000. This was due to India's large favorable balance of merchandise trade (exports largely exceeding imports) and to payment by Britain of a large share of the cost of war expenditure in India and of Indian troops abroad. In practice, Indian authorities provide the funds needed for this expenditure in rupees, and are reimbursed by the British government for its share, in sterling. These sterling payments are added to the reserve of the Reserve Bank of India, in London, which then issues a corresponding amount of new currency in rupees. The holdings of the Reserve Bank as of Jan. 31, 1945, amounted to Rs.1,304 crores. Industrial and commercial enterprises in India are passing at a rapid rate from British to Indian hands. British investments in India do not now exceed £200,000,000 sterling (far less than those in, for instance, Argentina and Brazil), and Indian investors now hold 75 per cent of the securities of the Indian government formerly held by British investors.

Reverse lend-lease (reciprocal aid) provided by India to the United States amounted to $374,325,000 by the end of the financial year 1944–45. This was for major goods and services, and did not include all those handed over or made available to American armed forces and shipping. With effect from April 1, 1944, India also agreed to provide raw materials and certain available commodities to the United States government for war purposes. The Indian government also made a contribution of $24,000,000 for the expenses of UNRAA; Francis B. Sayre headed an UNRRA mission which visited India in July 1945 to discuss the procurement of jute, peanut oil, and other Indian commodities against the government's contribution.

India's War Effort.—At the time of Japan's surrender the strength of the armed forces of India had risen to over 2,500,000 men, all volunteers, these figures excluding the increased numbers of troops raised and maintained by the Indian States and placed at Britain's disposal. Besides furnishing 700,000 men for the campaign in Burma, India sent over 300,000 troops to serve overseas—principally in the Middle East and Italy. Of the 27 Victoria Crosses (highest decoration for gallantry in the British Empire) won in the Burma campaign, 20 were awarded to officers and men of the Indian Army. Commissioned Indian officers increased from 307 in 1939 to over 10,000 in 1945, representing 35 per cent of the officer strength of the Indian Army; Indian and British officers alike have European and Indian troops under their command. The Indian Air Force, entirely Indian in composition, had 10 squadrons during the war, and the Royal Indian Navy was expanded to 15 times its pre-war strength. When the Japanese surrendered at Singapore on Sept. 12, 1945, the Indian Army was represented by Brig. K. S. Thimayya, and Capt. the Maharaja of Cooch Behar represented the forces of the Indian States. Down to May 31, 1945, the armed forces of India had incurred casualties amounting to 177,315; this total comprised 23,295 killed, 62,064 wounded, 12,264 missing, and 79,692 prisoners of war. During the war, Great Britain met the full cost of all Indian troops (with the exception of one division) serving outside India; Britain's expenditure on this account down to April 1945 totaled about £1,031,000,000.

Agriculture and Livestock.—The chief occupation of the people of India is agriculture, which engages some 120,000,000 of the population of the Indian Empire. The total area of land suitable for cultivation, exclusive of forest land, is about 536,000,000 acres (including 175,000,000 acres of culturable waste); of this acreage, 435,000,000 acres are in British India, and 101,000,000 acres in the Indian States. One third of India's area is cultivated, compared with 18 per cent in the United States.

India produces virtually all the world's jute; is the largest producer of sugar cane; and ranks second as a grower of rice, tea, tobacco and cotton, in the latter two instances being outstripped by the United States. Rice is the staple food for all low-lying, well-watered tropical districts; wheat is the staple food crop in a great part of northern India; and millets are the staple foodstuffs in areas which are too dry or infertile for rice or wheat. The exportable surplus of tea in 1945–46 was expected to amount to 375,578,058 pounds, and 5,094,000 bales of cotton (400 pounds each) was the anticipated yield from 20,398,000 acres in 1943–44. While India normally depends on imports of rubber to meet her own needs, during 1942–44, with 90 per cent of the world's crude rubber producing areas in Japanese hands, India was able to make 11,500 tons of rubber available to the United Nations; she accomplished this by greatly increasing the output of plantations on the Malabar coast and by organizing the collection of wild rubber on the Assam frontier. During the 1944–45 season, 2,923,000 acres were under jute. The acreages in 1943–44 and crop forecasts of other products are shown below:

Crop	Acres	Tons
Rice	79,960,000	30,603,000
Wheat	33,651,000	9,851,000
Cane sugar	4,113,000	5,696,000
Peanuts	8,531,000	3,305,000
Linseed	3,518,000	395,000
Rape	5,484,000	955,000
Sesamum	4,306,000	455,000
Castor seed	1,202,000	109,000

Other agricultural products of India are coffee, rubber, coconuts, hemp, pepper, cinchona, indigo, and opium. India possesses approximately 205,000,000 head of cattle (about three times as many as the United States), out of a world total of 595,537,000; there are 42,000,000 sheep, and large numbers of horses and goats. India has the world's largest system of artificial irrigation, some 55,000,000 acres being watered; the Mettur Dam, on the Cauvery River in Madras Presidency, is the second largest dam in the world. There are 135,000 square miles of forests in India; postwar reconstruction plans envisage the creation of 100,000 square miles of new forest in British India.

The conifer forests of the lower Himalayas supply the pulp for a growing paper-making industry; teak, deodar and sal are used for constructional work; and sandalwood, rosewood and ebony are the most important of the decorative woods. India has a practical monopoly of the shellac market, producing about 30,000 tons annually from lac, the resinous exudation of a small insect. Mulberry trees in Kashmir, the Punjab, Mysore, Madras, and Bengal provide sustenance for the silk worms of a considerable silk-spinning industry.

Minerals.—Most of the coal reserves, estimated at 76 milliard tons, is of low quality; with a production of 29,338,000 tons in 1940, India ranked eighth among the world's producers. Production of petroleum (in Assam and the Punjab)

is on a limited scale, only 311,000 tons being produced in 1940. India claims the largest reserves of high-grade iron ore in the world (total reserves of 20 billion tons); iron ore with a metal content of 1,994,000 tons was produced in 1939. India leads the world in production of sheet mica and ilmenite, and has the world's largest deposits of steatite. About 1,500,000 tons of salt are produced annually, but in addition 400,000 tons must be imported each year to meet the country's needs. With an output of 845,000 tons of manganese ore in 1939, India ranked second to the Soviet Union. Other minerals include copper, magnesite (40,000 tons in 1940), chrome ore, gold (289,433 fine troy ounces in 1940), graphite, monazite, and bauxite.

Production.—Within the British Empire, only Great Britain is a larger producer of iron and steel than India; in 1940–41, India turned out 1,896,000 tons of pig iron, 1,217,000 tons of steel ingots, and 1,178,000 tons of finished steel. During the war, production was greatly increased. The Tata Iron and Steel Works at Jamshedpur, wholly Indian-owned, are the largest single steel works in the British Empire. Next to iron and steel manufacture, the most important industry is the making of textiles. Less than 7½ per cent of the cotton piece goods consumed annually in India are imported. In 1942 there were 396 cotton mills, with 10,026,425 spindles and 200,170 looms; annual production of cotton textiles amounts to about 7 billion yards. Jute mills numbering 113 produced 1,100,900 tons of jute in 1940–41. Indian wools are woven into carpets and blankets, and imported wools into finer grades. Spun silk mills in Mysore and elsewhere produced large quantities of parachute silk. In 1939–40 nearly 70,000 tons of heavy chemicals were produced in India, including 30,000 tons of sulphuric acid and 20,000 tons of ammonium sulphate; methyl alcohol acetone and calcium acetate are produced, as well as such chemicals formerly imported as soda ash, caustic soda, sodium bicarbonate, bleaching powder, chlorine, bromine, and various classes of magnesium products. Other manufactures included matches (21,968,000 gross boxes in 1939–40), paints (35,000 tons in 1939–40), glue, glass, soap, aluminum, cement shoes, rubber goods, plywood, and foodstuffs. The aircraft industry was organized and developed during the war. Instruments were manufactured in great variety and aircraft assembled, and indigenous materials were used to make tanks for aircraft. The shipbuilding industry was greatly expanded; during 1943–44, 100 small vessels of various types were constructed, and ships of the United Nations with an aggregate tonnage of more than 26,000,000 were repaired. India's naval dockyard built for the British Admiralty a floating dock which is one of the largest in the world.

The Indian government announced on April 23, 1945, that it planned to take control of the powers for development of certain industries which had hitherto been vested in the various provincial governments. The rapid strides made in the past by the sugar, cotton textile, and iron and steel industries had been due largely to encouragement given by the Central government, which now proposed to assist such basic industries of national importance as aircraft, automobiles and tractors, chemicals, prime movers, machine tools, and electrical machinery. The government would be prepared to make loans or to subscribe a share in the capital of industrial undertakings; to guarantee a minimum dividend on capital or meet revenue losses for a fixed number of years; to support research organizations; and to ensure that taxation did not hamper development. In August the government published its five-year program for development of industrial and scientific research at an estimated cost of Rs.50,000,000. A technological institute on the lines of the Massachusetts Institute of Technology is to be established; nine specialized laboratories are to be built and equipped; and the scientific departments of the universities are to be strengthened and 700 research workers are to be trained within five years.

External Trade.—India's total foreign trade increased vastly during the war, the loss of European and Japanese markets being more than compensated for by increased exports to the United States, Latin America, China, and Egypt. Excluding the value of exports and imports on account of defense, and of transactions under lend-lease (both of them considerable items), the total foreign trade of British India increased from Rs.298 crores in 1942–43 to Rs.317 crores in 1943–44. Imports in 1943–44 were valued at Rs.118 crores (Rs.110 crores in 1942–43), and exports at Rs.199 crores (Rs.188 crores in 1942–43). In the first half of the financial year 1944–45 both imports of foreign merchandise and exports of Indian merchandise increased considerably, as shown in the following table comparing the figures with the like period of 1943–44:

	First Six Months 1943–44	1944–45	Difference
	(in crores of Rs.)		
Imports of foreign merchandise:			
Foodstuffs	3.57	9.07	+5.50
Raw materials	28.35	55.35	+27.00
Manufactures	19.52	28.21	+8.69
Total (including miscellaneous)	52.22	93.90	+41.68
Exports of Indian merchandise:			
Foodstuffs	21.78	21.04	−.074
Raw materials	19.25	24.12	+4.87
Manufactures	51.30	62.68	+11.38
Total (including miscellaneous)	93.43	109.23	+15.80
Re-exports	3.31	5.09	+1.78
Total exports	96.74	114.32	+17.58
Total visible balance of trade in merchandise	44.52	20.42	−24.10

The principal items of imports showing an increase were grains (Rs.4.35 crores), oils (Rs.21 crores), and raw cotton (Rs.6 crores); chief decreases in exports were spices (Rs.32 lakhs), provisions (Rs.23 lakhs) and sugar (Rs.16 lakhs). The share of the United States in the external trade of India increased by Rs.4.55 crores (Rs.17.05 crores in the first half of 1943–44 and Rs.21.60 crores in the like period of 1944–45). India buys only 21 per cent of her imports from Great Britain (63 per cent in 1914, during the First World War) and sells 31 per cent of her exports to that country (25 per cent in 1914); thus, Britain is now buying more goods from India than she is selling to her.

Communications.—The railroad system of India is the fourth largest in the world. The route mileage open to traffic in 1945 was over 41,000; about 50 per cent was of standard gauge (5 feet 6 inches), and some 42 per cent of meter track (3 feet 3⅜ inches), the remainder being narrow gauge track (2 feet 6 inches). Most lines were owned by the state. In 1944–45 some 960,000,000 passengers were carried, compared with 622,333,100 in 1942–43. Postwar plans included the construction of 3,000 route miles of additional railroad track and the ex-

penditure, over seven years, of Rs.3 billion on rehabilitation and establishment of plants to build locomotives. In 1944 there were over 300,000 miles of highways in British India, about one third of the mileage suitable for automobile traffic in all seasons. At outbreak of war the state-owned telegraph system comprised 556,000 miles of overhead wires and 118,400 miles of aerial, underground, and submarine cable conductors. All telephone systems in the country are also under state management. The telegraph and telephone channels were increased fivefold by 1945. Tata Air Lines and the Indian National Airways operated during the war on behalf of the government; during 1944 the companies flew a total of 2,100,000 miles, carrying 13,250 passengers and 1,540,000 pounds of mails and freight; the total traffic carried amounted to approximately 1,500,000 ton-miles. The government operates the All-India Radio (AIR) broadcasting system; besides broadcasts in several Indian tongues, AIR puts out programs in 15 foreign languages. A direct commercial radio telegraph circuit between India and the United States was opened in 1944.

Principal Events of 1945.—The stalemate in Anglo-Indian relations which had continued throughout the war was not broken in 1945 despite many sincere efforts. With internment in 1942 of leaders of the All-India Congress Party for instituting a civil disobedience movement, influence of the predominantly Hindu organization waned, the Muslim League making the most of the opportunity to strengthen its position throughout British India. Although the viceroy, Lord Wavell, had failed in 1944 to persuade the rival Indian parties to co-operate, he resumed the attempt the following year. In May 1945, Lord Wavell went to London for consultation with Winston Churchill's Cabinet, and on May 14, following his return to New Delhi, the British government published a White Paper making new proposals for a greater measure of self-government for India. Simultaneously with its publication all Congress leaders still under detention were released, and thus the way was open for full consideration of the plan. An interim government would function until self-government is initiated under a new constitution drawn up by the Indian parties themselves, an Executive Council (Cabinet) being selected by the viceroy from lists submitted by the leaders of Indian parties; the council, which was to represent all the principal communities, would contain equal numbers of caste Hindus and Muslims. With the exception of the viceroy and the commander in chief, all members of the council were to be Indians and (as is the case in the Dominions) a British high commissioner was to represent Great Britain's commercial and other such interests in India.

At the invitation of the viceroy, Indian leaders met in Simla on June 25 to consider the British proposals for a new Executive Council. The All-India National Congress was represented by its president, Maulana Abul Kalam Azad (a Muslim), by Pundit Jawaharlal Nehru, its secretary, and others, but not by Mohandas K. Gandhi, who elected to act only in an advisory capacity. Other leaders at the conference included Dr. Syamaprasad Mookerjee, president of the Hindu Mahasabha (mainly representing the interests of the Orthodox Hindus); Mohammed Ali Jinnah, president of the Muslim League; Tara Singh, leader of the Sikh community; Dr. P. N. Bannerji, leader of the Nationalist group in the Central Assembly; and Dr. A. M. Ambedkar, leader of Harijams (scheduled classes—the Untouchables). Lord Wavell invited the conference to submit to him an agreed list of names from which he might choose the membership of the new Executive Council, and it was due to the inability of the Indians to agree that the whole project foundered. Communalism—the long-standing conflict between Hindus and Muslims—was once more the reason for disagreement. A list of names submitted by the Congress Party contained, besides Hindus, representatives of all communities, including Muslims, Sikhs, Untouchables, and Christians (the last, Rajkumari Amrit Kaur, a woman in whose house Gandhi was staying); this co-operative attitude of the party was in striking contrast to its previous practice of abstention. Breakdown of the conference came when Jinnah claimed the right to nominate all of the Muslim members of the Executive Council, denying the assertion of the Congress Party that it was representative of all Indians. While Jinnah's Muslim League was undoubtedly the strongest party of his co-religionists, there were two provinces of British India which did not owe it allegiance—the Punjab, which had in its elected government a Unionist Party majority, and the North-West Frontier province, which had as premier a member of the Congress Party. It was therefore unreasonable for the Muslim League to demand the right to name all Muslim members, but was understandable by its genuine fear derived from experience of the Congress Party's provincial administrations during the years 1937–39. It had been due solely to Lord Wavell that the British government made the White Paper offer, and he shouldered the blame for its rejection by the Indians. When closing the conference on July 14 he acknowledged its failure, which "nobody can regret more than myself. I wish to make it clear that the responsibility for the failure is mine. . . . If it had succeeded, its success would have been attributed to me, and I cannot place the blame for its failure upon any of the parties." In this, at least, the parties agreed—all of them blamed the British.

On Aug. 21, 1945, it was announced that general elections to the central and provincial legislatures in British India were to be held in the cold weather season of 1945–46; the last elections for the Council of State had been held in 1930, for the Legislative Assembly in 1934, and for the 11 provincial legislatures in 1937. The Muslim League planned to fight the elections on the issue of Pakistan (separate sovereign Muslim states) and to decide whether or not it was the sole representative organization of the Muslims; the All-India National Congress decided to contest the elections on the issue of immediate transfer of power to the people. The results of the general election for the Legislative Assembly were announced on Jan. 1, 1946. The Congress Party received 59.6 per cent of the total votes cast, winning 56 seats; the Muslim League won 30 seats, and the Independents six, the remaining 10 seats going to members of other parties.

During August-September, Lord Wavell visited London again in order to consult with the new Labour government, and on September 19 he broadcast from New Delhi the announcement that a constitution-making body was to be convened as soon as possible; preliminary to that step, immediately following the general elections, he proposed to consult representatives of

the provincial assemblies to ascertain whether the 1942 declaration (the Cripps offer) was acceptable or whether an alternative or modified scheme was preferable. Representatives of the Indian States (which had not been invited to the Simla Conference) would also be consulted in order to ascertain in what way they would best take their part in the constitution-making body. Before that body met, the viceroy stated, the British government would publish the draft of a treaty which will require to be concluded between Great Britain and India should that country acquire complete independence or Dominion status.

Meanwhile, India was accorded recognition at many international gatherings. At the United Nations Conference on International Organization in San Francisco, India's delegation comprised Sir Ramaswami Mudaliar, who had served on the Imperial War Cabinet and the Pacific War Council; Sir Firoz Khan Noon, a colleague in those posts; and Sir V. T. Krishnamachari, prime minister of Baroda. Sir Girja Shankar Bajpai, agent general to the government of India in the United States, presided over the third session of UNRRA, held in London in August; and he represented India during October at the meetings of the United Nations Food and Agriculture Organization, in Quebec, and of the Far Eastern Advisory Commission, in Washington.

Despite the uncertainty as to the future status of India, the central government also went ahead with postwar plans. In consultation with the provincial administrations, the Department of Planning and Development prepared five-year schemes which included large irrigation and hydroelectric projects supplementing those already initiated in the Punjab, Bengal, and Madras. Excluding the new plans for Bengal, the total cost was put at well over Rs.6,000,000,000; the current Damodar Valley project in Bengal is to cost Rs.500,000,000, and additional hydroelectric schemes in that province will require a further Rs.1,500,000,000. The central government will reimburse the provinces up to 25 per cent of the expenditure on unproductive schemes, subject to a maximum of Rs.5,000,000,000. In order to obtain sufficient skilled men, technicians already employed in factories are to be sent for further training either to Great Britain or the United States.

WHEELER B. PRESTON,
Author and Publicist.

INDIA, Portuguese. See PORTUGUESE COLONIAL EMPIRE.

INDIAN AFFAIRS. With the resignation of John Collier as commissioner of Indian Affairs in March 1945, the longest commissionership ever served by one appointee was terminated. He had assumed office in 1933. Mr. Collier's successor, William A. Brophy, had served as special attorney to the Pueblo Indians since 1934.

The twelve years just past witnessed a complete reversal of the basic policies operating in Indian administration, policies which had been fairly constant since 1887. That was the year in which Congress adopted the General Allotment Act, the purpose of which was the dissolution of Indian tribes by individualizing tribal property and by various legal devices. The 1887 Act was, in fact, a reversal of the historical position which the United States had assumed in its relations with the aboriginal occupants of the country. Indian tribes had been treated as sovereign bodies. The federal constitution specifically reserved to the Congress the power "to regulate commerce with foreign nations, and among the several states, and with the Indian tribes." This intent of the Constitution makers was further defined by Chief Justice Marshall in the *Worcester* v. *Georgia* decision, in which he held that "A weaker power does not surrender its independence—its right to self-government—by associating with a stronger, and taking its protection." He used the expression "domestic, dependent nation" to describe the relationship of an Indian tribe to the federal government. Up until 1871 the United States entered into some 370 formal treaties with Indian tribes. The treaty method of governing Indian affairs was then abandoned, not because of an abandonment of the legal doctrine of tribal sovereignty, but rather because the lower house of Congress insisted on sharing in the formulation of Indian policy. Since it was required to appropriate money to carry out Indian treaties, it desired a voice in determining the purposes for which public monies would be spent. Formal agreements were then substituted, in which both houses of Congress must concur.

The law of 1887 was the first formal break in the long established policy. It represented a decision in the minds of the public men charged with responsibility in the administration of Indian affairs to accelerate the process of assimilating Indians into the citizenry of the nation. It was felt that the Indians occupied the anomalous position of being born in the United States without having the rights and responsibilities of citizenship. Moreover, Indian tribes in many instances occupied large areas of territory which stood in the way of westward settlement. The country had just gone through a period of border warfare, during which Indians had tried to hold intact some part of their fast diminishing domain. Their efforts had been irritating to the empire builders who wanted no opposition to their appointed task of taking over a continent.

The General Allotment Act of 1887 was rather disastrous in its effects on Indian life. In the following 45 years Indian land holdings were diminished at the rate of 2,000,000 acres per year. From a total area of 138,000,000 acres, the Indian estate was reduced to roughly 50,000,000 acres in 1933. The Indian population, which had numbered approximately 800,000 within the area of the United States at the time of discovery by white men, sank to a low of less than 250,000 during this period. Ceremonial practices were banned, Indian languages were forbidden in schools operated by the federal government, and administration of Indian affairs was a matter of absolutist rule. For all of this loss of Indian property and disruption of Indian life, there was no compensating advantage to the nation. Indians did not enter the body of citizenry; instead they remained on their diminished and impoverished acres and, in the areas where the lands had been allotted, came more and more to depend on public relief.

Mr. Collier, at the beginning of his administration, was faced with a situation which if it was to continue could only mean a deepening impoverishment and despair in the Indian population. By that time, indeed, the medical care furnished by the Indian Service, through arrangements with the Public Health Service, had considerably improved and as a result the Indian population had begun to increase. The birth rate among Indian tribes had always been high, and once the mortality rate was checked, growth of

the population was immediately realized. This, of course, in view of the diminishing resources, only intensified the economic problem. The first fruit of the Collier administration was the adoption by Congress of the Indian Reorganization Act, which (a) discontinued the practice of making individual allotments of tribal lands; (b) authorized funds for the purchase of lands; (c) established a revolving credit fund, giving Indians access to an adequate source of credit for the first time; (d) authorized Indian tribes to form political organizations and to incorporate under federal charters; (e) gave Indians employment preference in their own Indian service; and (f) established educational loans for vocational and higher education.

The twelve years of the Collier administration resulted in an addition of approximately five million acres of land through purchase and through various acts restoring lands formerly classified as Indian and in which the Indian title had not been extinguished. Credit funds of approximately $5,000,000 were made available, which through relending operations, have resulted in a total of outstanding credit of $8,000,000. Indian cattle holdings increased from 171,000 head in 1932 to 335,000 in 1944, and the income from this source increased from $338,000 to $6,318,986 in the same period. The total income from sales of livestock and livestock products in 1944 was approximately $14,000,000, as compared with $1,300,000 in 1932. Comparable gains were made in other forms of agriculture and in timber and mineral production.

Apart from these material gains, Indians were revested with the same rights of spiritual freedom enjoyed by other citizens of the United States. An act of Congress in 1924 had bestowed citizenship on all Indians born within the United States. Now they were guaranteed the religious freedom written into the federal constitution, which meant freedom to their own ceremonial life and to the language and cultural practices native to them. The educational policy shifted from an over-concern with academic training, which in previous decades had made very little progress in achieving literacy among Indians, and placed emphasis instead on winning a livelihood in the environment in which Indians live. Academic and vocational training for those who desired it and were prepared to profit from it was made more effective. The Indian health service was still further improved through the construction of a number of modern hospitals and through a concerted attempt to reach the Indian in his environment with the medical practices developed by the white man. Not the least of the accomplishments of the Collier administration was the improvement in personnel standards, resulting in the employment of persons professionally equipped to deal with the problems confronting the Indian people.

The record of the Indians in the Second World War becomes increasingly spectacular as the details of Indian achievement are released to the public. We now learn for the first time of the effective use which the Marine Corps made of Navajo Indians in its Pacific campaigns. These Navajo Indians were especially trained in communications work and working in teams of two men, they maintained voice communications between forward and command post positions most effectively. They participated in every action from Guadalcanal to Okinawa and must account in some part for the close co-ordination which the marines achieved in their amphibious operations. An Osage Indian, Maj. Gen. Clarence L. Tinker, led the assault on the Japanese Fleet in the Battle of Midway and was shot into the ocean. A Cherokee Indian, Rear Admiral James Joseph Clark, first commanded the aircraft carrier *Yorktown* and had risen to command of a carrier squadron in the battle for Saipan. An Indian, Pfc. Ira Hayes, was in the small group of marines who planted the flag on Iwo Jima. Still another Indian was the first American soldier to enter Berlin. The Congressional Medal of Honor has been awarded to three Indians.

The 45th Division, which covered itself with honor in Sicily and Italy, had a number of Indians in its ranks, and its emblem was appropriately the Thunderbird. The war brought about the greatest exodus of Indians from reservations that has ever taken place. Out of a total of approximately 65,000 able-bodied men between the ages of 18 and 50, one-third went into the armed forces and an equal number was engaged in war industries and essential war services. Notwithstanding this great loss of manpower at home, the production of agricultural commodities on Indian lands increased steadily all through the war years.

A decision vitally affecting the Indians of Alaska was issued during the year. The United States had never entered into a treaty with any of the Alaskâ natives, and as a consequence there has been uncertainty as to the nature of the rights which these natives enjoyed in the lands of the territory. The United States Supreme Court has been consistent in holding that aboriginal rights of occupancy held good even in the absence of a treaty recognizing the extent or degree of occupancy. The latest affirmation of this doctrine was handed down by the Supreme Court in the case of *United States* v. *Santa Fe Railroad Company*. The case involved the Walapai Indians, with whom no treaty had been made and whose lands were involved in a grant made by Congress to a railroad company. The Supreme Court held that notwithstanding the grant to the railroad company, the right of occupancy of the Indians had not been extinguished and therefore they were entitled to regain the lands which the railroad company had been using since 1868, the date of the grant. Applying this doctrine to the natives of Alaska, the solicitor for the Department of the Interior in 1942 ruled that the natives of Alaska might assert claims to areas occupied by them from immemorial time. Following this decision, three villages in southeastern Alaska petitioned the Secretary of the Interior for an opportunity to be heard with respect to their occupancy rights. A former judge of the New Mexico Supreme Court, R. H. Hanna, conducted hearings as a result of which a determination was made that as to the total area claimed by these villages, some 92 per cent had been abandoned or had never been used exclusively by the Indians. The remaining 8 per cent of the area claimed was recognized as continuing in Indian use and occupancy. Whether or not the Indians of these villages will be satisfied with this determination or whether they will appeal the decision through some possible court action is not known at this time.

D'Arcy McNickle,
Office of Indian Affairs.

INDIANA. East North Central state, United States; admitted to the Union Dec. 11, 1816. Population (1940): rural, 1,540,084; urban, 1,887,712; total, 3,427,796. Land area, 36,205, divided into 92 counties. Principal cities, with 1940 populations: Indianapolis, the capital, 386,-

972; Fort Wayne, 118,410; Gary, 111,719; South Bend, 101,268; Evansville, 97,062; Hammond, 70,184; Terre Haute, 62,693; East Chicago, 54,637; Muncie, 49,720.

Chief State Officers, 1945.—Governor, Ralph F. Gates; lieutenant governor, Richard T. James; secretary of state, Rue J. Alexander; treasurer, Frank T. Millis; auditor, Alvan V. Burch; attorney general, James A. Emmert.

Judiciary.—Chief justice of Indiana's Supreme Court, Frank N. Richman; associate justices, Oliver Starr, Howard S. Young, Frank E. Gilkison, Mart J. O'Malley.

Legislature.—The state General Assembly (Senate, 50 members; House of Representatives, 100) convenes biennially in odd years on Thursday after the first Monday in January.

Education.—At last report, there were 1,945 public elementary schools in the state, with 11,629 teachers; 55 junior high schools, with 1,087 teachers; and 860 senior high schools, with 7,701 teachers. Elementary, junior and senior high school students numbered 464,190. Elementary school teachers earned an average yearly salary of $1.465; junior and senior high school teachers, $1,745. Teacher training courses are offered at 32 colleges and universities in the state. Education is compulsory for children between the ages of 7 and 16, inclusive.

Finances.—Following is a statement of Indiana's finances for the fiscal year 1944–45, furnished by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$ 74,675,781.89
Receipts, 1944–45	261,190,735.60
Total	$335,866,517.49
Disbursements, 1944–45	251,441,820.49
Balance, beginning of fiscal year 1945–46	$ 84,424,697.00

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	172,832	176,244	243,376
Oats (1,000 bu.)	39,340	31,400	62,092
Buckwheat (1,000 bu.)	171	150	150
Wheat (1,000 bu.)	27,317	26,488	37,590
Barley (1,000 bu.)	1,025	1,296	1,134
Rye (1,000 bu.)	1,685	1,080	1,330
Hay:			
Alfalfa (1,000 tons)	784	677	851
Clover and timothy (1,000 tons)	1,009	1,348	1,167
Tame (1,000 tons)	2,508	2,577	2,639
Soybeans for beans (1,000 bu.)	11,894	23,150	28,640
Sweet potatoes (1,000 bu.)	287	225	225
Tobacco (1,000 lb.)	8,736	14,324	14,380
Potatoes (1,000 bu.)	5,576	3,115	4,620
Apples (1,000 bu.)	1,531	1,363	920
Peaches (1,000 bu.)	296	674	589
Pears (1,000 bu.)	267	157	146
Grapes (tons)	3,310	2,500	1,500

INDO-CHINA, French. See FRENCH INDO-CHINA.

INDONESIA. See NETHERLANDS INDIES.

INDUSTRIAL DESIGN. Industrial design approaches its most magnificent opportunity: to give shape to the reconversion of the world. The postwar era wants to have a face lifting, wants to present a new appearance to the millions. The craftsman for the millions is the industrial designer. He is supposed to fashion the appearance of our cereal box and our perfume container, the form and label of our canned goods and the shape of our airplanes, our refrigerator and automobile, office furniture and fountain pen, electric iron and toaster, kitchen interior and helicopter, gasoline station and express train and a thousand other things which will surround our lives every day, at home and in the office, while we travel or play golf (after all, he is fashioning golf clubs too).

There are two widely divergent schools of thought as far as the goals of industrial design are concerned, and the very near future will probably decide in which direction it will have to move for a long time. Some hold that industrial design should be mainly cognizant of its social responsibilities as far as the manufacturer and the public is concerned, and for this reason should stress clarity and functionalism, organic thinking and structural development; while others contend that the designer should be no more than a successful salesman, glamourizing products and machines regardless of any other considerations involved. There is great danger that industrial design will tend to follow this second road of great temptation and easy monetary reward, instead of developing a blend of the two schools mentioned. This danger is heightened by the fact that industrial design as such is a young profession, of scarcely more than 20 years of conscious existence and, until very lately it has been practiced by so small a number of people that its canons and ethics, the limits of its field, its practice and goals have not yet been clearly defined. Also there has not been any specific schooling for most of the men calling themselves industrial designers. People of many different backgrounds have drifted into industrial design, for instance: architects, engineers, interior decorators, sculptors, advertising designers, and in designing their products they have generally been influenced by the point of view of their former professions. Few of them have been as yet able to observe and comprehend the manifold and intricate details that should be considered in designing a product that will cost the manufacturer thousands of dollars and possibly will reach millions of customers. Many have lacked modern merchandising or manufacturing experience, and consequently have had to find their way by trial and error alone. Industrial design, on the other hand, has tremendously expanded its demands on the practitioner through the simple fact of reconversion of whole industries so that if the world is not to be flooded with ill-conceived articles, the technical education of industrial designers must be made an important part of postwar curricula. The Carnegie Institute of Technology, early recognizing the importance of instruction in industrial design, established a series of courses and created a Bachelor of Arts degree for industrial designers. Later, Pratt Institute in Brooklyn, N. Y., opened a similar series of courses, as did the Graduate School of Design in California and other institutions. Nevertheless the instruction in this tremendously important field leaves much to be desired. Pratt Institute also invited Alexander Kostellow, the first man to introduce industrial design in an academic curriculum (Carnegie Institute of Technology, 1933), to co-ordinate its courses in order to ensure graduates thorough grounding in their profession.

In 1945, two associations of industrial designers—the American Institute of Designers and the Society of Industrial Designers—undertook to establish the profession in all its legal and official details, and present it to the public as such, a profession rather than a trade.

H. FELIX KRAUS.

INDUSTRIAL DISPUTES. See LABOR CONDITIONS IN THE UNITED STATES.

INDUSTRIAL HYGIENE. See PUBLIC HEALTH SERVICE, UNITED STATES.

INFANTILE PARALYSIS. See MEDICINE.

INFLATION AND PRICE CONTROL. The AMERICANA ANNUAL has contained articles on this subject since the fear of inflation became a major issue in connection with the financing of the war program. The theory and implications of inflation have been covered in these contributions. Likewise, the measures enacted by Congress for price control and stabilization, and the administration thereof, have also been analyzed and appraised. Since there have been no important changes in policy, it will suffice here to record the extension act and its passage through Congress; the price changes during 1945 as compared with those in certain other countries; and the price prospects for the year ahead.

Extension Legislation—Progress Through Senate.—The Senate Banking Committee submitted a report to the Senate recommending the extension of the expiring act without change, save for the substitution of 18 months for the 12 months' life appearing in the measure it was to replace. The six Republicans on the committee brought in a minority report proposing specific amendments, which were introduced in the Senate debate on the bill. The Taft amendment, substituting a six months' term for the 18 months proposed in the majority report, was compromised by agreement on 12 months. Amendments proposed that went to the principle of price control, and their disposition, were as follows:

(1) To forbid the fixing of any price ceiling for "any commodity or the major part of any commodity," if the manufacturer or processor protested that such ceiling would not enable him to realize a profit at least equal to the "dollar margin" which he received during 1941 (Taft, Ohio). This amendment, if enacted into law, would have had the following results: (a) it would have made the high-cost producer the criterion for price ceilings for all producers; and (b) it would have substituted for the "overall" profit theory (that prices are high enough if they yield a profit on the whole business) the theory that each commodity, or part of a commodity, should yield a satisfactory profit on its own account. It failed of passage by a vote of 41 to 26.

(2) To make profit margins mandatory for cotton producers (Thomas, Oklahoma). Like the above amendment, this proposal would have made the high-cost producer the basis for ceiling prices for all producers. It failed of passage.

(3) To make unlawful any price ceilings for any major processed products of agriculture that are not high enough to cover all costs of production plus the profit made in a representative base period (Thomas, Oklahoma). This amendment was lost in favor of a substitute submitted by Senate majority leader, Alben Barkley, calling for reasonable price margins for the processing industry on each species of livestock, rather than on each separate marketable product as would have been required by the Thomas proposal.

(4) To outlaw all price ceilings for farm products unless they covered "all costs and expenses (including all overhead expenses, a return on capital, and an allowance for the labor of the producer and his family) . . . plus a reasonable profit thereon" (Wherry, Nebraska). The parity principle had raised farm prices from the index of 92 in 1939 to 203 in June 1945, an increase of nearly 121 per cent. The increase proposed by Wherry was to be superimposed upon that guaranteed by the parity formula. The proposal involved insurmountable administrative problems. Furthermore, it involved the application of the "cost-plus" theory of price fixing. This would have encouraged excessive costs as a means of increasing profits.

The Senate approved the above amendment by a vote of 37 to 30. Referring to it, Senator Barkley said: "The Wherry amendment is even worse than the Thomas amendment which was rejected. If anybody for a moment thought it would be adopted if would have been discussed. It seemed so ridiculous that nobody thought it worthwhile to discuss it. It is a more serious inflation threat than either the Thomas or the Taft amendment."

Progress Through House.—There were amendments introduced in the House that were counterparts of those in the Senate. These may be passed over, and attention directed to three amendments that represent departure from the Senate pattern:

(1) An amendment to confer upon the secretary of agriculture unlimited authority to veto any provision of the Price Control Act, or any law, executive order, regulation, order, directive, or any action taken by any other agency regarding any agricultural commodity, or any food product processed from any agricultural product (Andresen, Minn.). This authority transcended that possessed by the president or any administrative agency entrusted with the administration of price control legislation. It was passed by a vote of 145 to 142.

(2) A singular amendment designed to take power from the Office of Price Administration to require textile manufacturers to produce certain low-cost textiles, especially clothes for people in the lower income brackets, was rejected by a close vote, 164 to 160 (Hartley, New Jersey).

(3) Another, to permit persons or firms objecting to any price ceiling to apply to a federal district court for a restraining order to prevent such ceiling from going into effect (Dirksen, Illinois). This amendment would have enabled those affected to bypass judicial procedure set up in previous legislation. The House approved.

The New Control Act.—In conference, most of the inflationary amendments were either stricken out, or modified. The "cost-plus" formula, and the right of appeal to federal district courts, were eliminated. The amendment making the secretary of agriculture the arbiter of food prices, was modified but may still operate as a restraining influence to effective control. As it came out of conference, it does not require the OPA to secure approval of individual cases of increases above existing levels; nor give him authority to veto an executive order of the president, or of the Office of Economic Stabilization, or the price administrator's orders issued before the passage of the act; nor does the authority of the secretary extend to retail prices. The Barkley compromise amendment, basing profit margins on each major species of livestock, instead of on each portion or process, was accepted by the House conferees.

The conference report, amending the provisions of the expiring act as above indicated,

was promptly approved by both houses, and became law with the signature of the president on July 1.

Price Trends.—The trend of prices for 1945, as disclosed by the Bureau of Labor Statistics, must be taken with reservations since the bureau makes no effort to evaluate quality deterioration or the black market. The following table, compiled from figures published by this source, shows price *increases* for different series from Aug. 31, 1944, to Aug. 31, 1945, for the countries indicated:

	All-commodity index (percentage)	Farm products (percentage)	Industrial (percentage)	Cost of living (percentage)
United States	1.9	3.2	1.0	2.3
Canada	1.9	6.9	0.0	0.8
United Kingdom	1.8	1.2 (foods)	2.3	1.4

Price Prospects.—The year ahead will reflect the result of unprecedented buying power in an upward trend of prices. President Truman has stated that "reasonable wage increases" must be granted in many industries. While insisting on the importance of holding down living costs, he appears to favor higher prices if necessary to support higher wages. His statement is somewhat equivocal but it is being interpreted as a major breach in price control.

Secretary of Commerce Henry A. Wallace on November 1 published the conclusions of the division of research of his department. It concludes that industries generally could raise wages 10 per cent in 1946, without raising prices; and that some, like the automobile industry, could increase wages 15 per cent. Wallace bases these conclusions mainly on technological improvements and anticipated volume production. The evidence contained in his preliminary statement is not convincing, but the limits proposed may be regarded as the minimum acceptable without prolonged strikes.

The period of transition from war to peace is most difficult from the standpoint of price control. The demand for goods that have been off the market or available in limited volume for the past four years is expressed in unprecedented cash and war bond accumulations in the hands of the people. Increased wages, which will undoubtedly be forthcoming, will further accentuate demand, and its consequent, rising prices. This acute situation can be alleviated only by the upsurge of production. Whatever retards it, whether strikes, excessive demands on the part of labor or industry, will prolong the period of reconversion and the threat of inflation.

The October *Federal Reserve Bulletin*, organ of the board of governors of the Federal Reserve System, says: ". . . there is danger that in limited areas buyers may attempt to obtain goods by using their funds to bid up prices, or by placing orders in duplicate and triplicate; sellers, too, may be tempted to charge as much as the market will bear, and may thus contribute to inflationary potentialities. If these developments should occur, some of the disorderly price and inventory conditions which followed the First World War would be imminent. In view of these possibilities, it may be essential to retain some measure of control over prices and over spending, such as price ceilings and high level tax rates, until supplies are much more plentiful."

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INFLUENZA, Vaccination Against. See MEDICINE, RECENT PROGRESS IN.

INLAND WATERWAYS CORPORATION. This agency of the federal government operates a system of barge lines on the Misssisippi, Missouri, Illinois and Warrior rivers. According to the annual report of John S. Powell, acting chairman of the Advisory Board and acting president of the corporation, on Dec. 31, 1944, it had assets valued at $24,179,796.67, and its paid-in capital amounted to $22,362,843.12. The corporation has no funded debt. All current obligations are met when due, and advantage is taken of all cash discounts. This policy effected a saving in 1944 of $10,617.89. Revenue freight transported in the corporation's own barges in 1944 totaled 2,084,156 tons as compared with 1,932,662 tons in 1943. In addition, the corporation handled on a towage basis for the account of others, including carriers, a total of 404,093 tons of freight in 1944, a decrease of 29,291 tons from the amount similarly handled in 1943. But despite the fact that it handled more freight on its own account and less for others, the corporation, in 1944, had a consolidated operating deficit of its own and that of its wholly-owned subsidiary, the Warrior River Terminal Company, amounting to $385,545.49 as compared with a consolidated net income in 1943 of $178,012.08—a shrinkage of $563,557.57, resulting, it was said, from increased expenses of $714,057.44, less increased revenues and other income of $150,499.87, making the net shrinkage the $563,557.57 above mentioned. The total operating revenues of the corporation in 1944 were $8,692,687.26 as compared with $8,300,116.66 in 1943. Operating expenses in 1944 amounted to $9,156,133.07 as compared with $8,420,988.47 in 1943. A considerable portion of the increase in operating expenses resulted from wage increases ordered by the War Labor Board. These totaled approximately $265,000.

INNER MONGOLIA. A region in northern China extending mainly north of the Great Wall, from Manchuria to Sinkiang, its northern boundary (coinciding with the southern boundary of the Mongolian Republic) passing through the Gobi Desert. The prewar population was estimated at 5,000,000, of whom approximately 4,000,000 were Chinese; area during the Japanese occupation, about 200,000 square miles. Wanchuan, in Chahar Province, is a center of railway traffic and of the important caravan routes which traverse the country, other towns being Kweihsui (population est. 1939, 65,000), and Ningsia. The climate of Inner Mongolia is noted for its dryness, and for its extremes of heat and cold. Main grain crops are wheat, oats, millet, and buckwheat, with beans as the chief vegetable. In 1914 Inner Mongolia was reorganized by the newly-established republican government of China into three administrative areas and a military district, and in 1929 into the four provinces of Jehol, Chahar, Suiyan, and Ningsia. Between 1937 and August 1945, Inner Mongolia was controlled by the Japanese, who organized it in 1939 into a puppet state called Meng Chiang (q.v.), part of the eastern portion of Inner Mongolia (Jehol) being joined to the Japanese puppet state of Manchukuo. Inner Mongolia was included by implication in the communiqué of Dec. 1, 1943, following the Cairo Conference, calling for the expulsion of Japan from all territories "which she has taken by violence and greed." The Sino-Soviet agreement of Aug. 14,

1945, provided that the region should be under Chinese control. On October 16 it was reported that an independent government had been established in Inner Mongolia under the auspices of the Chinese Communists. See MONGOLIA.

INSECTS AND INSECTICIDES. See AGRICULTURAL RESEARCH ADMINISTRATION—*Bureau of Entomology and Plant Quarantine;* CHEMISTRY.

INSTITUTE OF ARTS AND LETTERS, National. See NATIONAL INSTITUTE OF ARTS AND LETTERS.

INSURANCE. The welcome ending of the wars in Europe and Asia necessarily brought substantial reorientation in the outlook of the insurance industry, as of all others. Various wartime problems were supplanted by the many difficulties of reconversion. Insurance has now become such an integral part of the American economy that even minor changes in the general economic outlook are quickly reflected in its operations. However, the net result has been that in 1945, as in previous years, the insurance industry successfully met its problems and attained new all-time highs—both as to the amount of insurance in force, the percentage of the general population enjoying its protection, and in the volume of premium income and assets.

Assets held and invested for the protection of policyholders and beneficiaries, in every kind of private insurance carrier combined, aggregated well over $50,000,000,000 at the end of 1945. Premium income ran some 5 per cent of national income, but after allowance for the return flow of cash to policyholders in payment of claims and dividends, and after allowance for the increase of policyholders' equity, the net flow of cash to these institutions from the public remained under 1 per cent of the people's income.

Among the more troublesome problems was the readjustment necessary in some instances because of the 1944 Supreme Court decision in the *South-Eastern Underwriters Association* case, holding insurance to be commerce. An act signed by President Roosevelt on March 9, 1945 extended the time within which states might make any necessary readjustments in their laws, in order to bring them in conformity with this Supreme Court decision; it also granted the companies, with appropriate safeguards for the public welfare, time to make any necessary changes in their business procedures. This extension of time expires on Jan. 1, 1948.

Casualty Insurance and Suretyship.—This branch of the business experienced again in 1945 the almost phenomenal progress that has characterized it for a great many years. Assets of the combined stock and casualty companies rose by some 10 per cent, and premium income was up nearly as favorably.

A few figures will illustrate how great has been the progress of this youthful branch of insurance. In the early 1920's, its annual premium income was hardly one half as large as that of the fire and marine insurance industry. By 1945 it had not only outstripped its older companion but was beginning to move well ahead of it. The increased mechanization and urbanization of American life, as well as wider realization by the public of its great need for casualty insurance protection, help explain this remarkable progress.

The sudden ending of the Second World War at first threatened to produce unusual problems in this field. Curtailed employment and payrolls, with consequent decrease in workmen's compensation premiums, and the lifting of restrictions on use of gasoline, with possible large increase in automobile liability claims, were among the difficulties on the horizon. After the initial impact, however, these problems proved less serious than at first thought. But federal taxation continues to be a serious matter, and underwriting results are necessarily being watched with great care by company officials.

Of the 1945 premium income totaling $1,650,000,000, better than one third was derived from workmen's compensation insurance, and another one third from the various forms of automobile insurance underwritten by casualty insurance companies. A variety of lines made up the balance, with the fast-growing accident and health insurance figuring very prominently among them.

Assets of these companies are now on the road to $3,500,000,000 in aggregate. United States Treasury securities comprise 55 per cent of the total, compared with 30 per cent in prewar days. Other bonds figure largely in the remainder, for the casualty insurance companies traditionally have had relatively small proportions of their assets invested in stocks. The importance of stocks as investments for casualty insurance companies has not changed greatly in a good many years; they now comprise well under 20 per cent of assets for the combined companies.

Fire and Marine Insurance.—This branch of the insurance business is a very old and well established one in American life, for there are now nearly 100 American stock or mutual fire insurance companies which have been in successful operation for a century or more. The year brought the industry further substantial growth in its property insurance in force—in considerable degree reflecting increased values incident to rising price levels and to the high level of industrial activity. Aggregate premiums were approximately $1,550,000,000, some 5 to 10 per cent above 1944. Virtually one half of this premium income received by the property insurance companies was for fire insurance, with the various marine coverages comprising another 20 per cent, motor vehicle insurance another 15 per cent, and miscellaneous coverages making up the balance.

Assets were in excess of $4,250,000,000—a gain of about 10 per cent for the year. Part of this increase represents the normal growth of the companies, and part is attributable to enhanced values for stocks, which ordinarily comprise some 40 per cent of the assets of the stock fire companies and about 15 per cent of the assets of the mutual ones. Holdings of United States Treasury issues again rose, and these now comprise between 35 per cent and 40 per cent of all assets. This ratio compares with about 20 per cent invested in federal securities prior to the Second World War.

The record as to fire losses continues to be unsatisfactory. Figures compiled by the National Board of Fire Underwriters indicate that fire losses in 1945 were some 10 per cent above 1944 and more than 20 per cent above 1943. Total fire losses in the United States (insured and uninsured) are approaching $500,000,000—more than one third higher than the average annual loss from 1933 through 1942. In interpreting these figures, one must keep in mind the increased volume of property subject to fire, also the higher current price level than that existing in the 1930's. But more efficient insur-

ance methods, as well as the expanded use of fire-resistant and fire-proof construction continues to bring about a decline in the average premium rate charged per $100 worth of fire insurance. It is now hardly one half what it was a half-century ago.

War Damage Corporation.—As in the previous year, war risk policies in force March 31, 1945 were automatically extended for another year from their expiry date by the federal-sponsored War Damage Corporation. No additional payment of premium or other action was required by policyholders. The War Damage Corporation began operations on Jan. 1, 1942 with $100,000,000 capital and with total funds of $1,000,000,000 available to it from the United States Treasury. Insurance was voluntary; the government-sponsored agency insured the major portion of the risk, while private fire insurance companies underwrote the balance and undertook to place and service the policies. Approximately 635 fire and casualty insurance companies have participated with the government in this cooperative activity. On the 5,000,000 policies written with an in-force of $150,000,000,000, losses proved to be extremely small. Ultimate disposition of the some $250,000,000 premium collected is still uncertain.

Hospital and Medical Service Plans.—Accident and health insurance has gained favor with the American public year by year, and this tendency was particularly pronounced in 1945. Aggregate premiums paid for all A and H protection are estimated at nearly $700,000,000, some 15 per cent higher than in 1944 and more than double the total for the prewar year 1940.

Among the many kinds of accident and health insurance, perhaps the greatest growth of all has been enjoyed by the plans which help cover the cost of hospital expense. These are underwritten both by private insurance carriers and under so-called "Blue Cross" hospital care plans. Nearly all American states are now served by these latter plans and enrolment is now roughly 20,000,000. The whole of this great growth in membership has occurred in a period of barely 10 years, and present enrolment is three times what it was prior to American entrance into the war.

The allied movement, the so-called "Blue Shield" medical service plan, has also been expanding lately. In the first half of 1945 such plans added more members than for the entire year 1944. There are now 25 in operation, covering some 2,000,000 members. Within certain limitations, they help pay the cost of surgeon's fees. Experimentation is also under way whereby medical care in the home or the doctor's office would likewise be provided for, on an insurance basis. See also GROUP INSURANCE; LIFE INSURANCE; VETERANS' ADMINISTRATION.

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INSURANCE, Life. See LIFE INSURANCE.

INTER-AMERICAN AFFAIRS. The outstanding events in relations between the American republics in 1945 were the Inter-American Conference on Problems of War and Peace held in Mexico City, Feb. 21 to March 8, 1945, and the United Nations Conference on International Organization, which met in San Francisco, Calif., April 25 to June 26.

Chapultepec Conference.—The first meeting, popularly called the Chapultepec Conference because its sessions were held in that historic castle in Mexico City, is considered by students of Pan American affairs to have been one of the most successful of all Inter-American conferences. Facing the lessons of the Second World War when it was demonstrated that the freedom of every American nation depended on the freedom of all the others, the delegates refused to allow divisive questions to stand in the way of marking out a program of hemispheric unity. The feeling that all the American republics form one family was clearly registered in a number of new and fundamental undertakings, in spite of the recognition of many unsolved problems in the Pan American field.

The most important accomplishments were: (1) the adoption of measures tending to assure the protection of American nations from aggression, especially the Act of Chapultepec; (2) the reorganization of the Pan American Union, charging it with new political and economic responsibilities; (3) a hemispheric economic program, which recognizes the interdependence of the United States and Latin American republics in transition from a war to a peace program, and the need for common participation in the industrialization of Latin America and raising the standards of living; (4) an emphasis on social democracy and human rights; and (5) the pattern for co-operation between the American system and a world organization.

Two addresses at the opening of the conference showed how different this meeting was from former ones. The president of the conference, Mexican Foreign Minister Ezequiel Padilla, omitted entirely the customary glorification of Simón Bolívar and other historic heroes, and called for action in the matter of raising the standard of living of the people of the Americas. "What is it that America expects of this conference?" demanded Señor Padilla. "It expects practical resolutions that will alleviate its misery . . . This war is not all destruction, it is also hope. Above all, it is a social revolution, the greatest in the history of the world . . . Here we must dedicate ourselves to the cause of human dignity, as the best tribute to those who have died for it. . . . The Western Hemisphere contains over thirty million square kilometers of frustrated lives. If democracy is not an impostor, it will offer safe, steady work, decent homes for the people, schools, hospitals, and above all, economic security not based on dictatorship and slavery, but on true liberty, fair distribution of goods and social justice for all people." Delegates showed their deep interest in this new Pan American emphasis on raising the standards of the common people by voting to name the idea "the Padilla doctrine."

The next speaker was the new, youthful secretary of state of the United States, Edward R. Stettinius, Jr. He declared that the foreign policy of the United States was: (1) the defeat of the Axis; (2) the elimination of Nazi-Fascist groups in Germany and in Japan, and the prevention of their infiltration into the American Continent (Latin American delegates later tried to get Spanish Falangists named as among the Fascist enemies of democracy, but failed); (3) to make its full contribution to building a world where each nation can develop its own free institutions; (4) the creation of an international organization to insure the peace of the world; and (5) to build a peace "which will afford assurance that all men in all lands may live out their lives in freedom from fear and want." Such declara-

tions the Latin Americans had long desired to hear from their northern neighbor.

Replying to the question that most deeply interested his auditors, Secretary Stettinius declared: "Here in Mexico City we are particularly concerned with the application of this policy to the Western Hemisphere. The United States intends to propose and support measures for closer co-operation among us in public health, nutrition and food supply, labor, education, science, freedom of information, transportation, and in economic development, including industrialization and modernization of agriculture."

Economic Co-Operation. — An Inter-American Economic Charter to define future economic co-operation was adopted. The charter laid down the following principles for collaboration: (1) joint action in the orderly transition of the economic life of the Americas from war to peacetime conditions; (2) sound economic bases for the development of natural resources, increased industrialization, improvement of transportation, modernization of agriculture, development of power facilities, encouragement of investment of private capital, improvement of labor standards and working conditions, including collective bargaining—all leading to a rising standard of living and increased consumption.

An Enlarged Pan American Union.—New duties assigned to the Pan American Union eliminated much of the dominance of the United States and withdrew the old ruling that prevented the discussion of political questions—two limitations that had fundamentally handicapped the usefulness of the union. The president of the union, who hitherto had always been the secretary of state of the United States, is in the future to be elected annually and cannot succeed himself. The union was directed to deal with political questions and all others that affect inter-American understanding. Representatives of Latin American countries on the governing board can no longer be the diplomatic representatives of those republics at Washington, but must be persons chosen *ad hoc* for this special assignment. The Pan American system was tightened by providing for the holding of international conferences of American states every four years and that of the ministers of foreign affairs of the American republics every year. An Economic and Social Council was approved. (This was formally opened on Nov. 15, 1945.) The full reorganization of the union will be consummated at the Ninth International Conference of American States to be held at Bogotá in 1946.

Act of Chapultepec.—The greatest surprise at the Mexico Conference was the proposal by Colombia, Uruguay, and Brazil that the American republics (transforming the old unilateral Monroe Doctrine) agree to move unitedly against an aggressor, whether an American country or an extracontinental power, that might threaten any American republic. The act provides that all American republics agree to unite against such an aggressor in three different ways: (1) by breaking diplomatic relations with the aggressor; (2) by breaking economic relations; (3) by using armed forces of the contracting parties to restrain the aggressor. It was agreed that a special conference should be held in Rio de Janeiro in October 1945, to write a treaty defining these obligations, but the meeting was postponed temporarily because the United States, at this later date, was not willing to meet with the militaristic Argentine government.

The Act of Chapultepec, in anticipation of the coming meeting of the United Nations, declared that its provisions should be "consistent with the purposes and principles of the general international organization, when formed."

Latin America at the San Francisco Conference.—The Chapultepec meeting was a practice game where the Americas learned to work together. Personal friendships formed at Chapultepec proved to be important tools in forging links in the chain of world unity a few weeks later. The Latin Americans gave much study to the Dumbarton Oaks proposals. They also went to San Francisco with a background of experience in international organization beginning in 1826 in the Bolívar conference to form an American League of Nations, on through a half century's work in the Pan American Union and active participation in the League of Nations. With this experience they carried four major emphases to the United Nations meeting: (1) democratization of the Dumbarton Oaks proposals; (2) clarification of relations between regional organizations and the world system; (3) recognition of the fundamental importance of raising the standard of living in any successful movement for international peace; (4) greater emphasis on international law, and good faith in settling international disputes.

Contacts were soon made with other delegations and individuals who were interested in these same principles. Co-ordinated efforts were continued throughout the nine weeks' meeting ending in final charter recognition of a number of these questions. The position of Mexico is an illustration. Previous to the San Francisco Conference she had sent a document to Washington suggesting some 20 changes in the Dumbarton Oaks proposals. Fifty per cent of these were finally adopted, the principal ones being as follows: (a) provide that any nation being investigated by the Security Council has a right to be heard at the examination; (b) clarify relation between regional organizations and world organizations; (c) incorporate in the charter a declaration concerning human rights and create an organ to carry out the same; (e) stipulate that a member state accused of aggression shall not have a vote in the decision; (f) suppress all limitations on free discussion of any international controversy; (g) make the Economic and Social Council an essential major organ; (h) provide for the taking over of the activities by the League of Nations and an ad interim body to serve between the San Francisco Conference and the first meeting of the new United Nations Assembly.

These proposals, made months in advance, and many written into the charter, represent most of the victories for democratic processes made at San Francisco—due, of course, not to one country, but to the united and ever-insistent drive of many of the "small" and "middle" nations, often accompanied by the displeasure of the Big Five.

The long struggle over the place of regional systems in world organization was one of the most difficult phases of the conference. The friends of Pan Americanism went into the debate in the spirit expressed by President Roosevelt: "We have not labored long and loyally to build a system of security and international co-operation on the American continent only to see it disintegrate. In the system we are creating for the United Nations, the American system has much to contribute."

It sounded strange indeed to delegates from

INTER-AMERICAN AFFAIRS



United States Secretary of State Edward R. Stettinius, Jr., addressing the delegates of the Inter-American Conference in the Chamber of Deputies, in Mexico City.



The Pan American governing board met in extraordinary session, in Washington, D.C., in which they unanimously adopted a resolution enabling Argentina to sign 61 resolutions of the Mexico City Conference. Señor Eduardo Garland, minister of the Peruvian Embassy reads the resolution.

the other Americas to hear a United States delegate, in his enthusiasm for the new world system, say that he would be willing to ignore the Monroe Doctrine and various other things to attain a universal system. They have come out of the war believing that, whether they were entirely agreeable or not, the Latin Americans must stand with the United States to defend the continent. Therefore, they said, let us realistically acknowledge this and write down the rules of this co-operative game. This was done in the Act of Chapultepec in Mexico. It was not necessary to renounce it to succeed in the larger task faced at San Francisco.

All delegations finally accepted this position. "Nothing in this Charter," says Article 52, "precludes the existence of regional arrangements . . . provided that such arrangements are consistent with the Purposes and Principles of the United Nations." Kindred declarations advise the Security Council to encourage regional organizations to settle local disputes. The right of regional organizations to take immediate steps for self-defense against an aggressor is admitted, but such measures must be reported to the Security Council, which retains the right itself to take any additional measures that might seem necessary to restore international peace.

Thus the Pan American System was fully recognized, the action against an aggressor provided in the Act of Chapultepec was indirectly approved, while the overall control of all sections of the world, so far as peace is concerned, was placed finally in the hands of the Security Council. For the first time in history, the conflict between the American and the European systems were co-ordinated.

The skill of Latin American delegates, the only ones who were thoroughly trained in the French theory of international relations, and at the same time could profit from long years of experience in the American system, was well recognized at San Francisco. The important steering commitee elected a Latin as its rapporteur. For the four commissions, the Southerners furnished one chairman and two rapporteurs; and for the 12 major committees, they provided five chairmen and five rapporteurs (the latter officers as co-ordinators and reporters of group activities, carried the heaviest committee responsibilities). With 20 votes out of 50, the Latin American delegates had an important part in writing a world charter, which was a great advance over the original proposals and marked the San Francisco meeting as one of the greatest conferences in history.

Argentine Militarism.—Argentina continued to be the divisive force in inter-American affairs during 1945. Because of her militaristic government and her co-operation with Nazi Germany, she was the only American republic not invited to the Mexico Conference, although she still retained her membership in the Pan American Union. On the closing day of that conference, a resolution was passed inviting Argentina to sign the actions taken at the meeting and expressing the hope that the republic "would orient its own policy until it achieved its incorporation in the United Nations." The hard pressed Farrell-Perón dictatorship accepted the terms, declared war on the Axis and applied for membership in the United Nations. This application was supported by the delegations of the United States and the Latin American republics on the ground that hemispheric unity was essential to world unity and that democratic processes could be more easily restored in Argentina by having her in rather than out of international organization. Against the declared opposition of Russia, Argentina was admitted. This caused a popular protest against what many considered an endorsement of fascism. Unfortunately the militaristic leaders, instead of adopting a more democratic program, redoubled the persecution of their enemies and increased restrictions on liberty.

In the meantime, diplomatic relations between the United States and Argentina were restored and Ambassador Spruille Braden openly attacked the military clique that controlled Argentina. For this he was praised by the democratic forces in that country and was called by his own government to take the place of Nelson Rockefeller, assistant secretary of state in charge of the Division of American Republics. Col. Juan Perón temporarily lost his power, but recaptured it when democratic forces lacked the leadership to follow up their advantage. Argentina illustrates how difficult it is for people who once lose their liberties to recapture them. She is paying the price of refusing to adopt measures to improve the conditions of the common people and of neglecting to take a deep, intelligent interest in the formation of democratic government.

Political Disturbances.—The end of the war brought several more or less violent political changes in Latin America as in other parts of the world. In Brazil, the opponents of President Getulio Vargas chose the advent of peace as an appropriate time to end his dictatorship, which began in 1930. The armed forces joined in this movement. Six weeks before the time appointed for elections (Dec. 2, 1945) Vargas was compelled to resign. Following the provisions of the constitution, the chief justice of the Supreme Court, Dr. José Linhares, became president and promised free elections. These were held on Dec. 2, 1945 and resulted in the free election of Gen. Eurico Gaspar Dutra as president, and an entirely new Congress.

In Venezuela the elections which were announced by President Isaias Medina Angarita seemed set for the return to power of Gen. Eleázar López Contreras, who became president the first time following the death of Dictator Juan Vicente Gómez in 1935. A group of young army officers revolted under the leadership of Col. Romulo Betancourt, who became president. He announced a program of social reform and continued co-operation with the United States and the United Nations.

Democratic regimes which came into power in 1944 after long dictatorships in Guatemala and El Salvador have had many difficulties but have maintained themselves in power. Peru held free elections in June and inaugurated a new liberal government under President José Luis Bustamante.

Cultural Exchange.—While the United States government suspended during the war its program of sending students to Latin America, it has continued to bring Latin American students, professors, and other visitors to this country. The Office of Inter-American Affairs published the *Register of Visitors from the Other American Republics* every two weeks during 1945. It shows a surprisingly large number of citizens of the southern countries who are constantly traveling in the United States. Distinguished scholars from the United States also have been sent by their government as teachers and lecturers to the other Americas.

In 1945 the Children's Bureau of the United States Department of Labor arranged that specialists in child welfare from Brazil, Colombia, Costa Rica, the Dominican Republic, Ecuador, Nicaragua, Paraguay, Peru and Venezuela should visit the United States for six months. They assembled in Washington for an orientation period of three weeks and then went to specially selected institutions in different parts of the United States for four months' study. They returned to Washington to consult further with the officers of the Children's Bureau and write a report of their experiences before returning home.

Also announcement was made by the Office of Inter-American Affairs that a group of 20 Latin American labor leaders would be invited to the United States to study the relations between employees and management and consult with trade union groups.

Relations between labor leaders in the Americas are becoming more active. The Confederation of Latin American Workers (CTAL) founded in Mexico City in 1938 now has affiliated organizations in 16 republics, totaling some 4,000,000 members. At its meeting in Cali, Colombia, Dec. 10–15, 1944, fraternal delegates were present from the United States, Canada, Great Britain, and the Soviet Union. A number of American republics appointed representatives of labor on their delegations to the Mexico City and San Francisco conferences. Strong delegations were sent by Mexico, Chile, Cuba, Brazil, Argentina, and other republics to the World Trade Union Conference which met in Paris during October 1945. The labor movement in southern countries has usually strongly opposed fascism in centers where reactionary movements have been active.

The United States Department of State recently recognized the importance of labor in international relations by organizing the Division of Labor, Social and Health Affairs. It has employed a staff of specialists in Washington and is sending special labor attachés to various Latin American and European countries. Data will be collected concerning such matters as wages, labor costs, employment, unemployment, cost of living, industrial disputes, labor legislation, economic and political policies of organized labor groups. "In most of the modern industrial nations," says an official of this division, "the labor force has become articulate through its organization. Such organizations exercise a strong and direct influence on governmental economic and political policies."

Organizational Changes in Cultural Exchange.— The year 1945, which marked the close of the Second World War, witnessed a number of shifts in the United States government program for cultural exchange. The Office of the Coordinator of Inter-American Affairs was organized in 1940 and developed an extensive program of educational, health, and social activities in Latin America and the United States. The exchange of students and professors, the promotion of visitation of most of the other groups, and the program of publicity, have been taken over by the Department of State. Nelson Rockefeller resigned as co-ordinator of inter-American affairs and became assistant secretary of state for Latin America, resigning from that office to return to private life in September 1945. Wallace K. Harrison succeeded Mr. Rockefeller as director of the Office of Inter-American Affairs, which continues the health and labor programs carried on in most of the American republics. The speakers bureau and the work of Inter-American centers in the United States have been turned over to a new private organization, the Council for Inter-American Co-operation in New York City. Since the office of the co-ordinator was a war activity, all of its work will probably be turned over to permanent departments of the government or abandoned.

The Inter-American Educational Foundation, Inc., was established as a permanent organization by the co-ordinator's office on Oct. 14, 1943, with funds granted by Congress. The plans for this foundation have been worked out after many years effort to find how the United States government might acceptably co-operate with other American republics in solving their difficult educational problems. The program involves three major sections: sending United States educators to the other American republics; bringing Latin American educators to this country; and the development of textbooks and other teaching material. Expenses are born jointly, usually in equal proportions by the two governments. Eleven countries—Chile, Peru, Bolivia, Ecuador, Paraguay, Guatemala, Costa Rica, Haiti, Honduras, El Salvador, and Nicaragua—have signed agreements with the foundation and are contributing about 70 per cent of the cost of the program.

The educational emphasis is on the community school idea, to raise the standard of living, develop democratic public opinion, and provide healthy, well-trained workers for the rapidly developing industrial life of these countries. Some 55 Latin American educators, including several ministers of education, have already been brought to the United States and have returned home to work on their new programs. Nearly 100 United States specialists have been sent to participate in the new developments in the southern republics. See also PAN AMERICAN AFFAIRS; WORLD POLITICS.

SAMUEL GUY INMAN,
Specialist in Latin American Affairs.

INTER-AMERICAN HIGHWAY. See HIGHWAYS.

INTERNAL REVENUE, United States. Collections of internal revenue by the government of the United States in the fiscal year ended June 30, 1945, totaled $43,800,387,575.90, as compared with the 1944 fiscal year collections of $40,121,760,232.77, an increase of $3,678,627,343.13. Income taxes (q.v.) accounted for $23,914,028,755.19 of the 1945 grand total as compared with $23,545,151,263.30 collected in the 1944 fiscal year. In 1945 liquor taxes accounted for $2,309,865,790.07 against $1,618,775,155.93, the 1944 total. Tobacco taxes added $932,144,822.32 in 1945 as compared with $988,483,236.89 in 1944. Of the decline in these taxes, $67,900,237.42 was attributed to the dropping off in the taxes on small cigarettes, due to scarcity. However taxes on large cigars, smoking and chewing tobaccos showed gains. Documentary taxes, that is stamp taxes on deeds, bonds, capital stock, playing cards, etc., totaled $65,527,514.65 in 1945 against $50,799,687.27 in 1944. Manufacturers' excise taxes produced $782,510,639.70 in 1945, as compared with $503,462,170.36 in 1944. Miscellaneous taxes accounted for $1,430,476,064.11 in 1945 against $1,076,921,051.06 in 1944. In the latter category are the taxes on theater and other admissions. These jumped from $205,289,025.61 in 1944 to $357,466,115.28 in 1945. Taxes on telephones, telegraph, radio, leased wires, etc., jumped from $141,275,266.52 in 1944 to $208,018,146.35 in 1945. Of the total internal revenue collected in

1945, New York accounted for $8,261,525,191.12; Illinois for $3,766,335,175.71; California for $3,722,459,219.40; Pennsylvania for $3,712,318,581.82; and Ohio for $3,055,951,071.09. Income taxes withheld at the source in 1945 totaled $10,264,219,340.18, as against $7,823,434,977.46 in 1944.

INTERNATIONAL LABOR ORGANIZATION (ILO). The principal activity of the International Labor Organization during 1945 was the 27th session of the International Labor Conference. Four sessions of the governing body, which functions as an executive committee of the organization, also were held during the year. The 94th session of the governing body took place in London in January. Its chief decisions were to convene the 27th session of the conference to meet in Paris in the autumn, and to fix the agenda of the conference as follows: (1) director's report (social problems of the immediate postwar period with special reference to Europe—future policy and program of the ILO); (2) the maintenance of high levels of employment during the period of industrial rehabilitation and reconversion; (3) welfare of children and young workers (first discussion); (4) matters arising out of the work of the constitutional committee; (5) minimum standards of social policy in dependent territories (supplementary provisions); and (6) reports on the application of conventions (Art. 22 of the constitution). The body also decided to convene a special maritime session of the International Labor Conference in the spring of 1946, and to hold a preparatory technical maritime meeting, for the purpose of drafting proposals for submission to the maritime conference, in November. Among its other decisions were to establish international tripartite industrial committees for seven of the world's chief industries, and to adopt a report of its constitutional committee which affirmed the desire of the organization for association with the general security organization.

At its 95th session, held in June at Quebec, Canada, the governing body fixed October 15 as the date for the opening of the conference, and voted to invite those members of the United Nations which are not members of the organization to be represented at it by observers. Other decisions taken were to convene the third regional conference of American states members of the organization to meet in Mexico City in the spring of 1946; to refer to the 27th session of the conference an application from Italy for readmission to the organization; and to adopt an expenditure budget of 11,521,510 Swiss francs for 1946.

During July the permanent committee of the Inter-American Conference on Social Security, with which the ILO works in concert, met at Mexico City. Meetings were also held in July at London of two special subcommittees dealing with questions on the agenda of the preparatory technical maritime meeting, and of the committee of experts on the application of conventions.

The governing body held its 96th and 97th sessions immediately prior to and following the 27th session of the conference. Two of the international industrial committees—those on coal mining and inland transport—were scheduled to meet in London late in the year.

The extensive program of publications of the International Labor Office was maintained throughout the year. See also LABOR CONDITIONS IN THE UNITED STATES.

CAMPBELL BALLANTYNE,
Information Officer, International Labor Office.

INTERNATIONAL MILITARY TRIBUNAL. See WAR CRIMES TRIALS.

INTERNATIONAL RELATIONS. See INTER-AMERICAN AFFAIRS; WORLD POLITICS.

INTERNATIONAL TYPOGRAPHICAL UNION. Parent body of approximately 900 local unions of printers established in as many cities in the United States and Canada. The organization was officially founded in 1852. The annual report of the secretary-treasurer for the year ended May 20, 1945, showed 80,422 journeyman members and 3,627 apprentice members. Of that number 10,130 were in military or naval service. The financial statement showed that members paid $704,144.40 as per capita tax, and $3,431,564.48 as pension and mortuary assessment to the international union. Benefits paid by the international union to members totaled $4,679,675.86, as follows:

Mortuary benefits	$ 681,873.89
Old age pensions	3,551,024.37
Maintenance Union Printers' Home	446,777.60
	$4,679,675.86

Interest from reserve fund balances, plus miscellaneous receipts, brought total receipts for the year to $5,086,993.87. Balances in all funds at the end of the fiscal year totaled $6,422,696.62. The Union Printers' Home, located at Colorado Springs, Colo., was established in 1892. The mortuary fund was started the same year, and the pension system was adopted in 1908. Headquarters: Typographical Terrace, Indianapolis 6, Ind.

JACK GILL,
Secretary-Treasurer, ITU.

INVENTIONS. The National Inventors Council, organized to get needed assistance from the country's inventive ability, announced its intention of calling inventors' attention to certain lines of immediate and direct interest to the armed services. They have listed more than 200 different devices, gadgets and improvements, mostly of a highly technical nature, some involving technical research and laboratory work in chemistry, electronics and technology. Of these the navy wants 25 problems solved the solutions to be shown in sketches and described in writing.

In May 1945, the Subcommittee on War Mobilization, of which Senator Harley M. Kilgore is chairman, presented to Congress the results of a thorough study of recent industrial and inventive progress, for the benefit of the government and of business men. There are listed 1,400 different items in a 400-page report entitled *Wartime Technological Developments.* Many of these items can be applied to peacetime purposes immediately after the end of the war, while others will require continued research to develop them further. The object of the report is to encourage the adaption and application of wartime techniques and inventions to peacetime industries so that industry may benefit from them, and also to encourage the production of new and improved products at lower costs. Most of these are minor improvements and developments, and include a number of new methods of saving or making use of waste products.

One thing that is attracting increasing comment today is the decline in the number of patents issued. Patents issued in the past have been taken as an indication of the extent and progress of invention. Since 1885, American patents issued have increased only in propo

tion to the increase in population, but since the last depression there has been a sharp decline in spite of the enormous increase in technical schools, engineers and skilled workers. A similar decline has taken place in Europe in the same period. There seems to be a falling off, or at least no increase, in basic or revolutionary inventions, such as we associate with Morse, Bell, Edison, DeForest, Sperry and the like outstanding inventors. Scientific research has increased to an enormous extent, and has resulted in a vast number of improvements and the cheapening of almost every kind of manufactured product. The research chemists and physicists of industrial corporation's laboratories are producing more new products and are making more improvements every year. Many of these may not be considered patentable, and what is more significant, the value of patents may not be considered so great as formerly. One of the chief factors in the decline of the number of patents issued is the strict scrutiny that applications are now subject to. Also a patent is legally worth little until it has been upheld by the higher courts, and the inventor receives little more benefit than the right to sue. Since 1880 the Supreme Court has invalidated about 65 per cent of the patents that have come before it, many of which covered important inventions. The history of most outstanding inventions in the past is to a large extent the story of the inventor spending much or most of his profits suing for infringements.

Gas Turbines and Jet Propulsion.—One of the outstanding developments that has come out of the war is the invention of the gas turbine and jet propulsion, which are promised to be the basis of a whole new aviation industry, to be swiftly adapted to civil aviation. It is also predicted that side developments will follow, such as new methods of air conditioning of aircraft out of the power available from a turbojet system, giving light, heat and refrigeration, all in one package of reasonably small size. Another speculation is concerning the adaption of the gas turbine or turbojet system to motor cars, in place of the present internal combustion motor.

Turbine-operated locomotives have been the subject of experimental research for several years. The Westinghouse Electric and Manufacturing Company (now the Westinghouse Electric Corporation) and the Baldwin Locomotive Company, in collaboration with the Pennsylvania Railroad, have built a revolutionary type of steam turbine-powered locomotive. The turbine is directly connected to the driving wheels through a train of gears, eliminating the reciprocating parts common to the usual steam locomotive. The boiler is designed to use powdered coal for fuel to give further economies in addition to those effected by the steam turbine. This locomotive was completed at the end of 1944 and put into experimental service.

Following this, nine railroads, including four of the largest systems in the country, have joined forces to spend $1,500,000 in developing the steam turbine-powered locomotive still further by substituting a turboelectric drive in place of gear connection between turbine and drive wheels, giving the same advantages possessed by the Diesel-electric drive, but retaining the economies derived from using powdered coal. The use of the turbine instead of the reciprocating engines not only increases tractive power but gives a smoothness of running at high speeds of 100 miles per hour or more. A still further advance is being experimented with by the Westinghouse Electric Corporation which has been working on a gas turbine it plans first to apply to locomotives, and then to develop for aircraft, ships, industrial power and finally electric power generating. If successful, the substitution of the gas turbine for the steam turbine would do away with the steam boiler and further simplify the locomotive.

Air Propeller Boat. — From Paris, France, comes the report that an Englishman, Christopher Hook, has invented a new kind of high speed boat driven by an air propeller, which, when at full speed, lifts above the surface of the water, being supported by a number of flat blades or fins extending below the bottom of the hull, that cause it to skim over the surface. This is an improvement over one of Alexander Graham Bell's little remembered inventions. Bell called his boat a "hydrodrome" which he tried out in 1919 and achieved a speed of 70 miles per hour. The drawback in Bell's "hydrodrome" was that it cut through the tops of high waves or swells, and was not seaworthy. Bell died in 1922 and his project was not carried to a conclusion, in spite of the efficiency and high speed attained. Hook's improvement consists of two appendages extending out in front of the boat that cause it to follow the surface of the water by changing the pitch of the supporting blades under the hull. This causes the boat to climb up and over the swells instead of cutting through the tops of the swells. The British government, after ignoring Hook's approaches during the war, is now said to be investigating the possibilities of the improved craft, since it was discovered that one of Adolf Hitler's secret experimental weapons, the V-6, was an improved type of Bell's "hydrodrome".

Autogiro Improvements.—In August of 1945 four patents, carrying 212 claims, were granted on autogiro improvements. These were assigned to the Autogiro Company of America. In general these patents cover improvements in the positioning and pitch control of the autogiro's rotor blades to give a greater degree of control in flight. The rotor of the autogiro is not actuated by a motor, but its lifting power comes from being pulled through the air by a motor driven propeller in front of the fusilage. This movement sets up rotation in the rotor which exerts lifting power. The patent claims allowed had been held up for ten years, which greatly delayed progress in this type of aircraft. In the meantime, progress has been made on the helicopter, which is different from the autogiro. Its rotor is driven directly by a motor and it is both lifted and propelled by being tilted in the required direction. When only one rotor is used, a small tail propeller is employed to prevent torque, but in the latest types of helicopter, the tail-propeller is not necessary. Instead, there are two rotors turning in opposite directions.

E. C. McDowell,
Consulting Engineer, New York.

IOWA. West North Central state, United States; admitted to the Union Dec. 28, 1846. Population (1940): rural, 1,454,037; urban, 1,084,231; total, 2,538,268. Land area, 55,986 square miles, divided into 99 counties. Principal cities, with 1940 populations: Des Moines, the capital, 159,819; Sioux City, 82,364; Davenport, 66,039; Cedar Rapids, 62,120; Waterloo, 51,743; Dubuque, 43,892; Council Bluffs, 41,439.

Chief State Officers, 1945.—Governor, Robert D. Blue; lieutenant governor, K. A. Evans; secretary of state, Wayne M. Ropes; treasurer, J. M. Grimes; comptroller, C. Fred Porter; attorney general, John M. Rankin.

Judiciary.—Chief justice of Iowa's Supreme Court, Oscar Hale; associate justices, William L. Bliss; T. G. Garfield, H. J. Mantz, Frederic M. Miller, John E. Mulroney, Ralph A. Oliver, W. A. Smith, C. F. Wennerstrum.

Legislature.—Iowa's General Assembly (House of Representatives, 108 members; Senate, 50) convenes biennially in odd years, on the second Monday in January.

Education.—At last report, there were 9,395 elementary schools in the state, enrolling 352,168 pupils. Public high schools numbered 1,000, 69 of which were junior high schools; junior and senior high schools had a total enrollment of 126,475 students. Elementary, junior and senior high school teachers earned an average yearly salary of $1,172. Teacher training courses were offered in 94 normal training high schools; 28 private senior or junior colleges; 3 public junior colleges; and 3 state-supported institutions. The following received financial aid from the state: Iowa State College, Ames; State University of Iowa, Iowa City; and Iowa State Teachers College, Cedar Falls. Education is compulsory for children between the ages of 7 and 16, inclusive.

Finances.—The following statement of Iowa's finances for the biennium July 1, 1942–June 30, 1944, was supplied by the state treasurer's office:

Balance, July 1, 1942	$ 72,477,194.12
Receipts and credits, 1942–44	1,255,581,764.55
Total	$1,328,058,958.67
Disbursements, 1942–44	1,214,723,908.91
Balance, June 30, 1944	$ 113,335,049.76

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following tables:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	436,342	607,608	529,296
Oats (1,000 bu.)	182,260	144,270	222,794
Buckwheat (1,000 bu.)	63	210	148
Wheat (1,000 bu.)	6,598	2,248	2,721
Barley (1,000 bu.)	8,979	259	84
Rye (1,000 bu.)	1,170	150	186
Flaxseed (1,000 bu.)	1,525	656	1,326
Hay:			
Alfalfa (1,000 tons)	1,940	2,041	1,960
Clover and timothy (1,000 tons)	1,969	3,238	3,381
Tame (1,000 tons)	4,952	5,528	5,568
Wild (1,000 tons)	156	148	131
Soybeans for beans (1,000 bu.)	13,783	42,580	36,195
Sweet potatoes (1,000 bu.)	204	200	250
Potatoes (1,000 bu.)	5,505	2,470	4,320
Apples (1,000 bu.)	253	80	52
Peaches (1,000 bu.)	77	20	40
Pears (1,000 bu.)	104	55	58
Grapes (tons)	3,340	3,100	3,000

IRAN, ê-rän', (PERSIA). A constitutional monarchy in southwestern Asia, bounded north by the USSR and the Caspian Sea; west by Iraq and Turkey; south by the Gulf of Oman and the Persian Gulf; east by Afghanistan and British Baluchistan; area, about 628,000 square miles; population (estimated) between 10,000,000 and 18,000,000, including 3,000,000 nomads. Since Sept. 20, 1941, following the accession of the former Crown Prince Mohammed Riza Pahlevi, the shah's Cabinet has been responsible to the elected Majlis (national assembly) of 136 members.

The country is divided into 10 major administrative provinces, and these into 49 minor provinces, which are further divided and subdivided, the final division being the village or group of villages, or the city. Officials of all these administrative units are appointed through the central government. The capital is Teheran (Tehran, population with surrounding district in 1940, 540,087). Other important centers are Tabriz (214,000), Isfahan (205,000), Meshed (176,000), Shiraz (129,000), Resht (122,000), Hamadan (104,000), and Kermanshah (89,000). Iran, placed under joint British-Soviet control in 1941, signed on Jan. 29, 1942, a treaty of alliance with Great Britain and the Soviet Union, under which the two latter powers undertook to respect Iran's territorial integrity, sovereignty, and independence. Iran declared war against Germany on Sept. 9, 1943, and five days later became a signatory to the United Nations Declaration. From November 26 to December 1 of the same year, Teheran, capital of Iran, was the scene of the historic conference in which the Allies worked out their unified plan for carrying the Second World War to its victorious conclusion.

Iran's international importance is due especially to its geographical position—commanding the western land approaches to India and the Soviet Union's access to the Indian Ocean—and to its rich mineral resources, particularly oil. Internally, a national plan has been under way for some years in Iran, aimed at making the country economically self-sufficient, particularly by improving agriculture and by promoting old and new industries.

Religion and Education.—The official religion is Moslem of the Shî'a sect, and more than one half of the inhabitants adhere to this faith; 850,000 are of the Sunnî sect; and there are 10,000 Parsîs, 50,000 Armenians, 30,000 Nestorians, and 40,000 Jews. As a result of the increased power of the centralized government, the official power of the priesthood has disappeared, all shrine and mosque endowments being administered by the ministry of public instruction and devoted to charitable institutions under its supervision.

Education has made marked progress since the establishment of a modern system which superseded the old religious instruction. The government pays the entire cost of government schools and makes grants to public, private, and foreign schools. Religious schools are maintained from endowments, but most of the foreign schools which had been conducted by various missionary societies have been taken over by the ministry of education, or closed. Iraq and the USSR conduct primary schools for children of their respective nationalities. The Iranian University at Teheran, established under government auspices, provides courses in medicine, science, preparation of teachers, and other fields of specialization.

Defense.—All services were reported in 1945 as undergoing reorganization in personnel and material equipment, no report being available as to numbers and matériel provided for on the new basis.

Agriculture and Industry.—Iran's principal grain crops are wheat, barley, rice, millet, and maize; its vegetables, peas, beans, and lentils; it fruits, grapes, oranges and lemons, apricots and pomegranates. Poppies are grown for the production of opium, and wool from Iranian sheep figures largely in the manufacture of the famous Persian carpets. The program for improving agriculture includes the installation of irrigation facilities, plants for the preparation of fertilizers, storage buildings, experimental stations, and the planting of many trees, of which there had been very few in Iran.

New crops (such as tea and tobacco) have been introduced, and the silk and cotton industries encouraged. Hand weaving of rugs and carpets continues along with Iran's other typical handicrafts, including pottery, wood carving, and embroidery, and with such new factory industries as canning, sugar refining, spinning and weaving, and the manufacture of cement, cigarettes, chemicals, glass, paper, and shoes. Heavy industry, confined mainly to a few plants for the processing of iron and steel, repair of locomotives and machinery, and war materials, is largely controlled by the government.

Minerals.—Oil, in which Iran ranks fourth among the world's greatest producing countries, is the leading mineral resource, a crucial source of government revenue, and the principal medium for international bargaining, economic and political. Great Britain, with its concession covering a large part of southern Iran, has been the leading recipient of Iranian oil. During 1942–43 shipments amounted to a total of 8,877,766 tons. The chief oilfields are located in the southwest, with a huge refinery at Abadan. Apart from oil, Iran's rich mineral resources, including coal, chromite, copper, arsenic, lead, manganese, cobalt, nickel, and tin, as well as sulphur, sodium salts, and rock salt, borax and marble, have remained largely undeveloped.

Trade.—During the year ended March 20, 1943, the value of the principal dutiable imports was 1,026,000,000 rials, that of the main exports (other than oil exports) was 461,821,000 rials. (The rial equals about three cents in U.S. currency.) Nondutiable imports for the same period were valued at 1,080,241,640 rials, of which goods imported by the Anglo-Iranian Oil Company amounted to 1,074,862,720 rials. In line with the national plan which aims to balance exports with imports, foreign trade is regulated according to a permit system. Wheat and barley, formerly important exports, have been made government monopolies, in which foreign private trading is no longer permitted. The government also exercises a monopoly in the sale of other commodities, including sugar, tea, matches and opium, and over various imports, including cereals, cotton goods, automobiles, tea, sugar, and chemicals. Most of the cotton and wool as well as the principal foods—grains, fruits and nuts (raisins and almonds, for example), and tobacco —were in 1945 being consumed domestically.

Finances.—The total budget (ordinary and extraordinary) for 1944–45 provided for revenues of 10,325,000,000 rials, and expenditures of 10,324,000,000 rials, as compared with 1943–44 revenues of 7,676,710,000 rials and expenditures of 9,194,398 rials (rial = approx. 3 cents in U.S. currency).

Communications.—Railway lines reported in operation in 1945 (including the trans-Iranian railway linking the Persian Gulf with the Caspian Sea at Bandar Shah by way of Teheran, the capital) had a total mileage of 1,181, with additional lines under construction. The 685-mile section of the Iranian state railway from the Persian Gulf to Teheran was used from December 1942 until July 1945 for the transport of lend-lease supplies to the Soviet Union. During the period of its operation by the United States Army, the line's rolling stock was increased to the extent of 180 locomotives and 5,175 freight-cars, brought in under lend-lease. The government program of road construction and improvement was being continued in 1945. In addition to an extensive telegraph system, mainly state operated, government wireless stations are maintained at Teheran and nine other important centers, and Teheran is in direct wireless contact with Europe through Tiflis and Beyrouth. Air services connect Teheran with Europe and Moscow.

Principal Events.—Iran declared war against Japan on March 1, 1945, and in April and May participated in the San Francisco Conference. On May 31 it was announced that the Iranian government had demanded that the United States, Britain, and the USSR withdraw their troops from the country. According to the treaty of Jan. 29, 1942, between Iran, Britain, and the Soviet Union, the two Allies were to withdraw their forces from Iran within six months of the end of the war against Germany "and her associates," (The New York *Times*, May 31, 1945) presumably including Japan. On May 31, 1945, while the war with Japan was still proceeding, the Iranian government asked for the immediate withdrawal of the Allied troops. On July 10 the United States Army announced that it had returned the Persian Gulf-Teheran section of the state railroad to the British, who had passed it back to the Iranian government. The British expressed the view that Allied troops were no longer necessary following the German collapse. This view was not accepted by the Soviet government, whose unofficial spokesmen had complained, late in 1944 and in April 1945, of what they considered unfriendly acts on the part of the Iranian government toward the USSR. On August 8 it was announced that British and Soviet troops would be withdrawn from Teheran, and on October 22, Foreign Minister Anushirawan Sepahbodi announced to the Majlis that all Allied troops were to be withdrawn from the whole of Iran by March 2, 1946.

Throughout much of the year Iran's internal politics were marked by tension between the conservative National Will Party, and various parties of reform. Most prominent of these latter was the Tudeh (the party of the masses), with its program of land distribution and complete political freedom for the peasants, free compulsory education, economic equality of women, and friendly relations with all the Allies. All parties supported the principle of maintaining the economic as well as the political independence of Iran. But the Tudeh Party favored the extension of concessions which would benefit the general population of the country, including oil concessions to the Soviet government, which had been refused in 1944 by the government of Iran. The tension between the parties brought about several changes of ministries during the year, and led to the voicing (at the Council of Foreign Ministers in London) of opposition demands for the end of alleged persecution of groups urging democratic reforms. On October 11 (1945) the Majlis passed a resolution deferring the projected elections until the departure of the Allied occupation troops; and on October 22, Premier Muhsin Sadr, who had held office since June 7, resigned, continuing in office, however, on the shah's request, pending the formation of a new government. On November 16, a revolt began in Soviet-occupied Azerbaijan Province, in northwestern Iran, the insurgents forming (at Tabriz, on November 20) a "National Congress" of Azerbaijan, and demanding that the province become an autonomous unit within the Iranian state. The revolt occasioned an interchange of notes between the governments of Great Britain and the United States on the one hand and the

Soviet Union on the other, and as one of the problems remaining unsolved after the Moscow conference of December (1945), was expected to become a subject for study and discussion at the January meeting of the United Nations Assembly in London.

IRAQ (MESOPOTAMIA). A constitutional monarchy in Asia, situated in the lower valley of the Tigris and Euphrates rivers, and extending from the Kurdish mountains of Turkey in the north, to the head of the Persian Gulf in the south, with Iran to the east, and the North Arabian and Syrian deserts to the southwest and west. It has an area of 143,000 square miles and a population exceeding 5,000,000. Formerly a part of the Ottoman Empire, it was recognized as an independent state by the Treaty of Lausanne and placed under mandate to Great Britain. On Aug. 23, 1921, the Emir Faisal was proclaimed king after a plebiscite, and, according to the organic law passed in 1924, the monarchy is hereditary in his family. The reigning king is Faisal II, who succeeded his father, Ghazi, second king of Iraq, on April 4, 1939. The regent and crown prince is Prince Abdul Ilah, uncle of the king. The capital is Baghdad (pop. 1945 est. 550,000). Parliament is composed of two bodies, the Chamber of Deputies, now comprising 120 members, and the Senate, whose members are nominated by the king; the number of senators is limited to one quarter of the number of deputies. In 1932 Iraq was freed from all mandatory control through admission to the League of Nations. British forces invaded Iraq in May 1941, following a coup d'état by pro-Axis Rashid Ali Beg Gailani, and were in control of the country by June 1. Iraq declared war on the Axis on Jan. 16, 1943.

Religion and Education.—Of the total population there are 4,489,540 Moslems, 114,720 Christians, 105,000 Jews, and 50,000 adherents of other religions.

Education is free and nominally compulsory. Arabic is the language of instruction. Kurdish is taught in the elementary grades of schools in districts where the 750,000 Kurds form a substantial part of the local population. There are 833 state primary and elementary schools with 87,261 pupils, 42 private and foreign schools with 22,121 students, 45 intermediate schools with 8,933 students, 15 secondary schools with 2,258 students. In addition there are two boys' technical schools with 291 students, two home-arts schools for girls with 248 students, one public-health school, one school for nurses and four training colleges for teachers. There is no university, but there is a college of medicine, a college of pharmacy, a college of law, an engineering college, a military college, a military secondary school, and a higher institute for training teachers.

Finances.—Receipts for the year ended March 31, 1945, were 23,767,070 Iraqi dinars (1 Iraqi dinar = approximately $0.04 U.S. currency), as compared with 16,227,666 Iraqi dinars for 1944 and 12,004,366 Iraqi dinars for 1943. Expenditures for the same period were 22,044,620 Iraqi dinars, while the expenditures of 1943 and 1944 were likewise somewhat less than the receipts for those years. Capital works revenue and expenditures were included for the first time in the regular budget in 1944, and amounted to 3,642,608 and 1,189,582 Iraqi dinars respectively.

Agriculture.—Hills and mountains rise in the north and northeast of Iraq, while elsewhere the land is level, desertlike during the long, hot, dry summers, and blooming when watered by rain or irrigation. Predominantly agricultural, only a small fraction of the area is under cultivation, this mainly through irrigation. The chief crops are wheat, barley, rice, dates, Indian corn, cotton, and tobacco.

Export of dates normally totals 80 per cent of the entire amount produced in the world, and it constitutes Iraq's second largest export. About 15 per cent of the quantity exported comes to the United States. In 1940, 23,084 tons of dates were exported to the United States, but the following year only 413 tons were shipped. War conditions prevented further exportation until the latter part of 1945 when it was estimated (September) that shipments of dates to the United States for the year would total 25,000 tons.

Iraq experienced the most favorable agricultural season in 1943 since the outbreak of the First World War, unofficial estimates of grain production running as follows: wheat, 540,000 metric tons; barley, 750,000 tons; rice, 280,000 tons; millet (including both giant and ordinary), 50,000 tons. In the year ended Aug. 31, 1943, Iraq produced 4,037 bales of lint cotton (787,928 kilograms). The tobacco crop for 1943, 60,000 bales (of 50 to 60 kilograms each), was slightly larger than for 1942.

Petroleum.—Though Iraq is predominantly agricultural, its wealth is only partially dependent on agriculture, since there are oil fields which have been leased to foreign companies and from which the government derives a large revenue. Oil production reached 4,295,126 tons in 1939 and fell to 2,495,728 tons in 1940. Output in 1942 was 18,784,600 barrels, and in 1943 the production of 24,536,600 barrels exceeded that of any year since the outbreak of the war. More than five sixths of the 1943 production was accounted for by the internationally owned Iraq Petroleum Company which operates the Kirkuk fields. Iraq oil is conveyed by pipeline to port refineries located in French controlled Tripoli (Lebanon) and British controlled Haifa (Palestine). Commercial rivalry between the two powers caused serious diplomatic exchanges in 1944 and 1945, the French accusing the English of having secretly supported the Lebanese and Syrian national movements with war munitions and money in order to deprive France of her share of Iraq oil. The Haifa refineries are being considerably expanded. In June 1945 preliminary engineering was begun for a new 16-inch pipeline from Kirkuk to Haifa. When the line is completed early in 1948 it is expected to have an initial annual capacity of 23,000,000 barrels.

Industry and Economic Status.—Compared with the agricultural, pastoral, and oil resources of Iraq, industry is of relatively minor importance. Manufactures include cigarettes, soap, textiles, matches, mirrors, buttons, combs, and alimentary pastes, bricks, tiles, and copper utensils. Iraq's three woolen mills operated at full capacity during 1944, and thousands of hand looms contributed to the total output of between 200,000 and 250,000 yards of woolen textiles. Three cotton gins process the country's cotton crop which amounted in 1944 to 1,080 metric tons. The 1944 crop was less than one fourth of the 1940 yield, due to diversion of effort to growing more cereals. In 1944 the first modern glass factory was established. Approximately 160 tons of goat hair and from 20 to 40 tons of mohair represent the annual yield from goat flocks estimated to number 2,800,000.

Transportation.—Basra (pop. 286,312) is the chief seaport of Iraq, situated 70 miles up the Shatt al Arab at the head of the Persian Gulf. The Tigris is navigable to Baghdad and beyond. Rail routes now follow the rivers, the total length being about 964 miles. Nearly 4,000 miles of roads have been opened for the passage of all kinds of traffic. There are 156 post and telegraph offices. Mail and passenger air service is normally maintained with the European Continent. There are normally several air mail dispatches to Europe each week. Train service on the Baghdad Railway between Baghdad and Haidar Pasha was begun on July 18, 1937. Three services a week operate between Baghdad and the Bosporus, three days being required for the trip. The route is as follows: Baghdad, Baiji, Mosul, Tel Kotchek, Nisibin, Aleppo, Adana, Ankara, and Haidar Pasha. Iraq's three principal cities—Basra, Baghdad, and Mosul—being thereby linked by rail. During 1944 the Iraqi State Railways also operated a narrow-gauge line from Kirkuk in the north to Basra in the south. About 6,835 motor vehicles were in operation, including 2,114 trucks, 1,020 busses, 1,232 taxis and 2,469 private and government cars.

Foreign Trade.—Iraq's Asiatic trade almost equals that with Europe. The character of trade with the two areas diverges widely, however. Europe takes the bulk of Iraq's output of grains, hides, and skins, and supplies most of the metal manufactures and machinery; whereas Asia purchases a good proportion of dates and cotton, and furnishes chiefly textiles, tea, sugar and timber. Most of the raw wool, and sausage casings, and a high percentage of dates, go to the United States, Iraq's main supplier of automobiles.

Total imports in 1943 amounted to 17,909,763 Iraqi dinars, while total exports (excluding petroleum) amounted to 7,970,197 Iraqi dinars. Transit trade in 1943 amounted to 603,449 Iraqi dinars. Large imports are tea, sugar, textiles, iron and steel manufactures, and in normal times automobiles, tires and accessories. Main exports are oil, dates, cattle and sheep, fish, sausage casings, grain, raw cotton, and wool.

Principal Events.—On March 22, 1945 Iraq delegates were among the signatories of the Arab League (q.v.). The League came into being a year after Iraq had protested against a resolution introduced in the United States Senate by Senator Wagner of New York, calling for American approval of Palestine as a Jewish national homeland; the Iraq protest stated that if the resolution were adopted it would be "tantamount to the United States declaring war on the Arabs." Consequently the resolution was killed in committee. Iraq was among the 46 nations represented at the first meeting of the San Francisco Conference in April 1945. The following month Prince Abdul Ilah, the crown prince and regent of Iraq, paid a state visit to the United States and was the guest of President Truman at the White House on May 28.

IRELAND. The most westerly island of the European continent, Ireland has an area of 31,838 square miles (Eire, 26,601 square miles; Northern Ireland, 5,237 square miles). The population of Eire, December 1943, was 2,949,713; that of Northern Ireland, 1937, 1,279,745. Archaeological remains show that Ireland was inhabited by a well-organized and cultured community centuries before Christ. The country was divided into a number of kingships under an Ard-Ri or high king whose seat was at Tara. Christianized without bloodshed, mainly by St Patrick in the 5th century, Ireland reached her golden age of artistic and scholastic achievement in the 7th, 8th, and 9th centuries. Having successfully resisted subjugation by the Norsemen, it was incorporated—after a struggle of centuries—under the English crown. Insurrections in the 17th, 18th and 19th centuries failed but in 1921 a treaty was signed between Great Britain and Ireland by which 26 counties of Ireland accepted dominion status for the time being under the name of the Irish Free States. A separate Parliament for the remaining 6 counties (known as Northern Ireland) had been set up under the Government of Ireland Act, 1920. The government of that part of Ireland formerly known as the Irish Free State is today based on the constitution enacted by a plebiscite of the people in 1937 which restores the former name of Ireland (Eire) and declares that Ireland is a sovereign, independent, democratic state.

Eire

The Constitution of Eire, operative since 1937, declares that Ireland is a sovereign, independent, democratic state and affirms the right of the Irish people to choose their own form of government, to determine their country's relations with other nations, and to develop its life—political, economic and cultural—in accordance with its own genius and traditions. The Irish language is the first official language, with English recognized as a second official language. The constitution applies to the whole of Ireland but it provides that, pending the reintegration of the national territory and without prejudice to the right of the Parliament and government established by the constitution to exercise jurisdiction over the whole of that territory, the application of the laws enacted by that Parliament shall have the same area and extent of application as those of the Irish Free State which did not include six of the nine counties of the province of Ulster known as Northern Ireland.

Religion and Education.—Catholicism is the predominant religion in Eire, the census of 1936 listing 2,773,920 Catholics, 145,030 Protestant Episcopalians, 28,067 Presbyterians, 9,649 Methodists, and 11,754 others. Free elementary education is provided in the national schools, in which the Irish language has been a required subject since 1942. Latest figures available in November 1945 gave the average daily attendance as 459,984. Estimated state expenditure for elementary schools for 1944–45 (apart from administration) was £4,063,039. Recognized secondary schools, conducted under private control (many under church auspices) receive state grants subject to a system of inspection. In 1942–43 the number of pupils (of ages between 12 and 20) attending these schools was 39,787, the estimated total state expenditure, apart from administration, being £568,030. Technical schools, and agricultural schools and classes established by various local authorities, or by the Department of Agriculture, are partly financed by the state and partly from local taxes. University education (including higher education in agriculture) is provided at Trinity College, Dublin (founded in 1591) and at the National University of Ireland (founded in 1909), with its three colleges, located in Dublin, Cork, and Galway; the total number of university students in 1944–45 was 6,150.

Finances.—Estimated total revenues for 1944–45 were listed at £45,780,000; estimated

total expenditures at £50,224,000. The currency unit is the Irish pound, with the same value as the pound sterling (equivalent in November 1945 to approximately $4.03½ in the New York market).

Principal Events.—The outstanding political event in Eire in 1945 was the presidential election (June 14). Under the constitution which came into operation Dec. 29, 1937, having been made law by national plebiscite, the Oireachtas, or Parliament, is made up of the president and two houses: the Dail composed of 138 representatives, popularly elected by adult suffrage under the Proportional Representation system, and the Senate of 60 members, partly chosen by an electoral college and partly nominated. The first president was Dr. Douglas Hyde, noted Gaelic scholar, who, chosen unanimously in 1938 and installed in June of that year, retired at the end of June 1945, the presidential term of office being seven years. As there was no agreed candidate on this occasion, an election took place. The two main parties, Fianna Fail, or Government Party (with 76 seats in the Dail) and Fine Gael, or Chief Opposition Party (with 29 seats in the Dail) put forward nominees, Sean T. O'Kelly (F.F.) and Gen. Sean MacEoin (F.G.). Dr. Patrick McCartan was nominated as an Independent. All three had taken part in the Irish War of Independence (1916–21) in consequence of which three fourths of the nation had eventually been liberated. Polling was on June 14. The result of the first count was: O'Kelly 537,965; MacEoin 335,539; McCartan 212,791. Under the Proportional Representation system, McCartan was eliminated and his transferable votes were distributed, when the final figures were: O'Kelly 565,165; MacEoin 453,425. President O'Kelly was installed in office June 25. On July 17 this popular election of a president was cited by the Taoiseach, or prime minister (de Valera) in an important debate in the Dail as one of the signs of the country's constitutional status. He referred to the constitution which declared Eire a sovereign, independent, democratic state, asserted that all power was derived from the people and provided for an elected president as head of the state. He concluded that Eire was an independent republic associated as a matter of external policy with the states of the British Commonwealth.

On the same day as the presidential election, the elections for corporations, county councils, and other local governing bodies took place throughout the state. The principal feature of the results was an all-round gain in seats by the Fianna Fail.

The second important political event of 1945 was the broadcast by Prime Minister Winston Churchill on V-E Day containing a reference to Eire which was deeply resented by the Irish people. Mr. de Valera's reply aroused the greatest interest. Among other things he expressed surprise that Mr. Churchill did not understand why Ireland, whose national territory Britain had partitioned in 1920, was neutral in the war. Then he asked the British prime minister a hypothetical question: whether, if Britain had been invaded by a greater power and eventually had wrested most of her territory free but saw six counties still occupied, would she join that greater power in a war for liberty while part of her own territory remained in subjection? "Would he think the people of partitioned England an object of shame if they stood neutral in such circumstances?" asked Mr. de Valera. "I do not think Mr. Churchill would." Ending his broadcast, Mr. de Valera said: "Even as a partitioned small nation we shall go on and strive to play our part in the world, continuing unswervingly to work for the cause of true freedom and for peace and understanding among the nations."

Eire occupies a key position in air traffic, and since before the war the airport at Foynes on the Shannon and the land base of Rineanna close by have together been a terminal point for transatlantic passenger service. The port is particularly valuable because meteorologically it is one of the freest from fog in the world. The facilities it offers in connection with long distance air transport were recognized in an agreement arrived at in Washington on Feb. 3, 1945, between the government of Eire and the government of the United States. The agreement provided that all eastbound air traffic from the United States to Eire and countries beyond, and all westbound traffic on the same route should stop at the Shannon port which was designated as "first European port of call." The port has been developed at considerable cost and the land base has four of the finest runways in Europe, while the buildings and piers are of the latest design. Four transatlantic passenger lines—Pan American Airways, American Export Airlines, American Airlines, and British Overseas Airways—use the port; in 1943, 15,000 passengers passed through on their planes. One of the marine basins will accommodate 15 flying boats and another is being built. Altogether nearly £2,000,000 is being spent on the Shannon Airport which will rank amongst the best in Europe.

The ending of the war in Europe had its immediate reactions in Eire. The day after V-E Day the government brought to an end all press censorship. Much other restrictive legislation was also speedily terminated though controls are still being maintained in the economic field, principally to regulate prices, to prevent inflationary movements in wages, dividends and profits, to maintain equitable distribution of scarce commodities and compulsory tillage, and to ensure priorities for imports of materials to provide work and reopen factories.

Trade and other statistics kept secret in Eire, as in other countries, during the war have been published and show how hostilities affected Eire's economic position. For example, between 1939 and 1944 external trade declined from a yearly total of over £70,000,000 to £57,000,000. Despite this decline, about £40,000,000 worth of goods (mainly foodstuffs) was sent to Britain during those five years in excess of British imports into Ireland.

There was published during the year some of the postwar schemes for industry, prepared either directly by state departments or in conjunction with them. Thus the Department of Industry and Commerce published a White Paper on the plans for building and reconstruction. The total value (at prewar rates) of the building work to be done is £73,000,000. Most of this will be spent on erecting dwelling houses, schools, factories, and hospitals. During the war, though Eire has a flourishing cement industry, there could be little building as timber and steel were not available. It is estimated that about 60,000 houses must be built, both to make up for the absence of building during the war and to continue the rehousing of the people which led to 132,000 new dwellings being provided from 1932 to 1939.

Also during 1945 a plan was published for rural electrification to be carried out by the Electricity Supply Board (the ESB) which controls all hydroelectrical undertakings in Eire. The ESB has already harnessed the Shannon (longest river in Ireland or Great Britain), has just completed the harnessing of the Liffey a few miles from Dublin, and has begun work on the northern river, the Erne, on almost as great a scale as that on the Shannon. The development of many other rivers and waterfalls is projected. These will provide the electricity which under a £17,000,000 scheme is to be brought to every farmstead, not for lighting only but to provide motive power also. Other postwar schemes include the reorganization and re-equipment of the railways at a cost of £16,000,000, the rebuilding of Irish roads, canals and aviation centers at a cost of over £18,000,000, the establishment of new industries, a national drainage scheme for agricultural land involving £7,000,000, and an extension of the present farm improvements scheme by which grants are made available to every progressive farmer.

By these projects the state hopes to provide in some measure for workers whom the end of the war will release both from the Irish Army and from war work in Britain, where over 150,000 Irish men and women went after the outbreak of the war. The demobilization of the army began in August 1945, with gratuities and deferred pay on a generous scale. The men thus released will be absorbed as quickly as possible into civil life, and a special act has been passed compelling employers to reinstate them in the jobs they had before volunteering for national defense. (There was no conscription in Ireland: the 200,000 who joined the defense forces—including the two home-based and unpaid sections, the local Defense Force and the Local Security Force—were all volunteers.) To maintain a high level of employment will require much new industrial machinery and raw materials. Part of the difficulty in securing this has been concerned in the past with shipping; to meet this difficulty Irish Shipping Ltd. was set up with state aid for the purpose of establishing and operating an Irish mercantile marine. The fleet of Irish merchant ships is still small but is to be expanded until it is capable of ensuring essential supplies to Irish consumers and Irish manufacturers, and also of extending the field of Irish exports. This development will help to provide Irish seamen with postwar jobs and Irish factories with materials for increased employment.

The Irish government has announced its intention not only to continue its policy of industrialization by which over 100 entirely new industries were set up in the seven prewar years, but also to make Ireland as far as possible self-sufficient as regards food. The position in this respect has been improved considerably during the war in the case of bread and of sugar: the wheat acreage which was only 163,000 ten years ago was 666,000 in 1945; the acreage under sugar beets which was only 57,000 in 1935, was over 85,000. (Beets are converted into sugar in four great sugar factories brought into being by state aid.) By the development of the home market the farmer and the agricultural industrialist (bacon manufacturer, butter maker, etc.) are to get a secure and profitable market at home, thus avoiding the difficulties of fluctuating prices abroad. This policy of creating a state largely self-sufficient in essentials of food, clothing, and shelter has been steadily pursued. Since 1932 the tillage area has been increased by 70 per cent or a million acres, without any decrease in the number of cattle despite inability to import feeding-stuffs during the war. Industrial output increased substantially from a total net value of £25,000,000 in 1931 to £41,000,000 in 1943, while total wages and salaries went from £14,000,000 to £22,000,000 during the same period.

One of the last acts of the Parliament before it adjourned for the long recess on July 20 was to vote £3,000,000 for gifts of livestock, food, and clothing to European nations stricken by the war. These supplies are to be provided by reduction of Eire's home consumption. The scheme has been approved by a united press and by all parties in the state. This is in addition to previous grants to various countries, including £100,000 to India and a similar sum to Italy, made through the Irish Red Cross, and in addition also to setting up in the autumn of 1945 a complete hospital, fully equipped and staffed, at St. Lô in France.

The Irish Red Cross Society is engaged in Eire itself on a country-wide campaign against tuberculosis, having set up a special antituberculosis committee which, through public subscriptions, is becoming well equipped to explain the curability and methods of prevention of the disease to the people. The state is undertaking its part in establishing special hospitals to combat tuberculosis, and in May 1945 the parliamentary secretary in charge of public health announced proposals for the erection of three sanatoria in Dublin (1,000 beds), Cork (700 beds), and Galway (400 beds), which are to relieve the pressure on the hospitals already functioning. These new hospitals will, like the whole public medical service in the state, be maintained from public funds and will be an addition to the social services which are already in operation. The year 1945, for example, was the first full year of the Children's Allowances scheme by which, as a lightening of the cost of the larger families, parents received 2 shillings, 6 pence a week for each child after the first two. This is particularly helpful in the rural parts of Ireland where the families are more numerous and money has greater purchasing power. The cost to the state is £2,300,000 a year. Other services, which aim at redistributing income, are old age pensions, widows and orphans' pensions, free milk, butter, bread, fuel, and footwear to the poor and the families of the unemployed and to the aged and the blind, unemployment assistance to all non-insured workers, and unemployment benefits for all insured workers, free school meals, a widespread school medical service and free medical attendance, including specialist treatment for all unable to provide it for themselves. There is also a national health insurance scheme the scope of which was further enlarged in 1945. It helps all employed persons in the lower income groups between 16 and 70, it provides for sickness and disablement and brings many other advantages to the people, including marriage and maternity benefits, free dental and optical treatment, free treatment at convalescent homes, etc. In 1945 the state expended over £13,000,000 on social schemes, or between a third and fourth of its entire revenue.

The great cultural event of 1945 was the commemoration of the centenary of the death of Thomas Davis, the most noted of all the writers in the Young Ireland movement of a hundred years ago. Under his inspiration his own generation and subsequent generations struggled for in-

dependence for Ireland. The government and the people joined in the celebrations which lasted a week. The president of Eire marked with a tablet the site for a statue of Thomas Davis. Artists were asked to design a special stamp which was issued on September 9; composers were commissioned to write original music for the occasion and this was broadcast on September 9, when the centenary week opened, and at its close on September 16. A bust of Davis was unveiled in the Parliament House, a special commemorative volume on Davis and his time was published, a plaque was unveiled in the house in Dublin where he died, and the week was filled with military and civic ceremonial. The government asked artists of Irish origin all over the world to submit by 1946 paintings of Irish historical interest covering the last hundred years and offered to spend a considerable sum in purchases. Under the auspices of the National Film Institute a film of Davis' life was made.

A great Military Tattoo was held in Dublin from August 28 to September 8; it reviewed Irish military history throughout the ages, making its principal feature a full reconstruction, in dress and armament of the period, of the Battle of Benburb in which Owen Roe O'Neill won his momentous victory; 1946 will be the tercentenary of that battle. Thousands of Irish troops took part in the display which was held at the spacious Royal Dublin Society showgrounds at Ballsbridge.

Northern Ireland

A division of the United Kingdom of Great Britain and Northern Ireland. It consists of 6 of the 9 counties of the old Ulster Province, namely Antrim, Armagh, Down, Fermanagh, Londonderry, and Tyrone; the cities of Belfast and Londonderry are county boroughs (units of local government independent of the counties in which they are situated). The duke of Abercorn, governor of Northern Ireland for more than 22 years, retired on Sept. 6, 1945, being succeeded by Vice Admiral Earl Granville, brother-in-law of Queen Elizabeth, hitherto lieutenant governor of the Isle of Man. The Parliament of Northern Ireland consists of a Senate of 26 members (two ex officio and 24 elected persons) and a House of Commons of 52 elected members. At the general election on June 14, 1945, the Unionist Party gained 33 seats (5 less than previously) and the Nationalists 10, minor parties winning the remaining 9 seats. Sir Basil Brooke continued as prime minister. Northern Ireland also returns 13 members to the House of Commons of the British Parliament (at the July 1945 general election, 10 Unionists, 2 Nationalists, and 1 Labour); the Ulster Nationalist Party decided on Aug. 11, 1945, to reverse the decision taken in 1935 that its members elected to the legislature of Northern Ireland and to the British House of Commons should not take their seats. For the financial year 1944–45, the estimated revenue was £16,630,000 and expenditure was placed at £16,594,000; these figures excluded the estimated cost of "Reserved" services (responsibility for which is vested in the British Parliament) and the "Contribution" to the British Exchequer (put at £35,000,000) for such Imperial services as defense. The chief industries are agriculture, shipbuilding, and the linen and textile trades. Acreage under the plough increased by 80 per cent during the war; cattle, sheep, and eggs shipped to Great Britain in 1944 had a value in excess of £6,000,000. The acreage devoted to flax increased from 21,000 in 1939 to more than 125,000 in 1944, all linen products being devoted to the war effort. During the war the Belfast shipyards built 140 warships and 123 merchant vessels, these numbers representing 10 per cent of the United Kingdom's total shipbuilding production. Legislation enacted in 1945 authorized the government to provide financial assistance to new and existing industries. Manufacture of fabrics from long-staple rayon is a new state-aided enterprise.

The United States, while still neutral, signed a contract on June 12, 1941, giving her facilities for establishing bases in the British Isles. In Northern Ireland, a United States naval base was built near Londonderry, "Lockheed City" was a gigantic aircraft plant, and the United States Army Air Forces acquired numerous airfields; the largest American fleet ever seen in a United Kingdom port was assembled in Belfast Lough to take part in the Normandy landings on D-day. Almost 300,000 American troops were trained in Northern Ireland. Some 25 per cent of the unmarried men of the United States Navy in Northern Ireland, and 75 per cent of like American personnel in Londonderry, married Irish girls.

For area, population, education, etc., see Great Britain.

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IRON AND STEEL. The release of censorship is gradually freeing data suppressed throughout the war years, but as yet there has not been sufficient time to show much in the way of results from the countries most affected.

Iron Ore.—Mines in the United States produced a total of 111,020,145 long tons of crude iron ore in 1944. Of this total, 73,260,136 tons was shipped direct, while 37,760,009 tons was treated to recover 20,264,661 tons of sinter and concentrate, making a total of 93,524,797 tons of usable ore, not including 592,908 tons of pyrite sinter and cinder. Shipments from the mines, at 94,544,635 tons, somewhat exceeded output. All of these figures are declines as compared with 1943, when crude ore was 119,674,980 tons, usable ore 100,595,322 tons, and shipments 98,817,470 tons. It is important to note the geographical trend in production that has resulted from the war. With but the single exception of New York-Pennsylvania, all of the leading ore producing areas of the Eastern states showed declines in output (varying from 7 to 15 per cent). In the Far West, where the industry has spread during the war expansion, states that produced 2½ million tons of ore in 1943 turned out 3¼ million tons in 1944. Production in the Lake Superior district in 1944 was 79,111,320 tons, 84 per cent of the domestic output, and 6 per cent less than in 1943. Lake shipments were 80,674,010 tons (including manganiferous ore) and rail shipments 1,182,995 tons.

In the first ten months of 1945 production of usable ore totaled 82,667,135 tons, as compared with 88,310,756 tons in the same period of 1944, while shipments were 83,404,381 tons against 90,519,847 tons in the same months of 1944.

Shipments of iron ore from Canadian mines in 1944 declined sharply to 498,635 long tons against 581,769 tons in 1943. The new operation at Steep Rock Lake got under way late in the year and contributed 16,552 tons of the total.

Lack of transportation has cut heavily into the normal 1,500,000-ton output of Chile, most of which was exported to the United States. In

1944 the Tofo mine, the only important producer, produced 663,879 long tons, of which 17,660 tons was shipped to local blast furnaces, and the remainder was stockpiled for future shipment.

Cuban production was similarly restricted, a normal 250,000-ton output being cut to 27,922 long tons in 1944, all of which was stockpiled.

Iron ore production in France in 1944 was reported at 9,265,290 metric tons, against 16,879,160 tons in 1943, and a peak output of 37,839,000 tons in 1937.

Newfoundland reported 464,421 long tons in 1944, against 542,805 tons in 1943.

Spanish output was 1,558,793 metric tons in 1944, of which 780,396 tons was from the Bilbao mines. This was only a nominal decline from 1,587,817 tons in 1943, but is a continuation of a trend of several years, with a drop of about 55 per cent since 1939. In the first half of 1945 there was a still heavier decrease, to 596,000 tons, against 783,000 tons in the first half of 1944.

In Northern Africa, Algeria recovered from 183,572 metric tons in 1943 to 787,768 tons in 1944, and Spanish Morocco exported 547,625 tons in 1943 and 675,808 tons in 1944, but Tunisia is still lagging, with 29,703 tons in 1943. The combined output of this area in 1939 was 4,600,000 tons.

Shipments of Swedish ore to Great Britain were resumed in July 1945.

Pig Iron.—Pig iron production in the United States reached a new record high in 1944. In spite of a slackening of demand for other war metals from mid-1944, the total for the year was 61,003,759 short tons, exclusive of ferroalloys, as compared with 60,765,195 tons in 1943. The increase is to be attributed entirely to the expansion of production in the Western states, since the increase over 1943 in those states was greater than the total increase, and the Eastern states showed a small decline. Ore consumed in blast furnaces in 1944 amounted to 109,374,151 tons of domestic origin and 255,449 tons of foreign ore.

In Canada pig iron output increased from 1,758,256 short tons in 1943 to 1,852,628 tons in 1944, while ferroalloys dropped from 218,687 tons to 182,428 tons, making totals of 1,976,952 tons and 2,035,056 tons. Production during the first ten months of 1945 was 1,508,082 tons of pig iron and 158,162 tons of ferroalloys, a total of 1,666,244 tons, against 1,721,261 tons in the same months of 1944.

Scattering returns from other countries were as follows, in metric tons, the 1944 figures being given first, followed by 1943 in parentheses: Brazil 294,573 (247,680); Mexico 134,632 (147,059); Spain 571,335 (697,318); South Africa 471,520 (486,800).

Steel.—As with pig iron, the production of steel in the United States continued to increase in 1944, reaching a new record high of 89,641,575 short tons, as compared with 88,836,366 tons in 1943. The maximum weekly output was in April, equivalent to an annual rate of 92 million tons. The all-time record for steel output in any 12 consecutive months was 90,183,816 tons, in August 1943—July 1944.

Demand for steel did not begin to decline until the end of 1944. Output in the first nine months of 1945 totaled 61,886,532 tons, against 67,325,201 tons in the same months of 1944. From these figures one may venture to estimate the year's total at about 80 million tons, or 10 per cent less than in 1944, barring interference from strikes.

In Canada steel production increased from 2,996,978 short tons in 1943 to 3,024,410 tons in 1944. About 95 per cent of the total was in ingots, and 5 per cent in castings. During the first ten months of 1945 the output was 2,454,061 tons, as compared with 2,517,005 tons in the same period of 1944.

In Brazil the new Volta Redonda plant, the largest in Latin America, is nearing completion. The coke ovens, blast furnace, boiler house and power house were completed by August 1945, the three open hearth furnaces were scheduled for completion in September, and the blooming mill for November. A rail mill is to be ready early in 1946, and a sheet and tin mill at midyear. The capacity of this plant will nearly double the country's potential output.

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ISLE OF MAN. An island in the Irish Sea, 16 miles south of Burrow Head, Wigtownshire, Scotland, politically within the United Kingdom of Great Britain and Northern Ireland. The area is 227 square miles, and the population (1944) numbered 50,000. Douglas (pop. 20,012) is the capital, and Castletown, Peel, and Ramsey are ports. The bicameral legislature (Tynwald) consists of a Council and the House of Keys. The Council is composed of the lieutenant governor (Air Vice Marshal Sir Geoffrey Bromet, appointed Sept. 7, 1945), the bishop of Sodor and Man, 2 deemsters (judges), and 4 other members, 2 appointed by the lieutenant governor and 2 by the House of Keys. This latter body, one of the world's oldest legislative bodies, has 24 members elected by adult suffrage. In July 1945, King George VI and Queen Elizabeth visited the Isle of Man to open the proceedings of the Tynwald, this being the first time a British sovereign had ever done so. Revenue in 1943–44 amounted to £1,498,317 and expenditure was £998,953. There are 32 elementary and 5 secondary schools; King William's College (for boys) is at Douglas, and Buchan School (for girls) at Castletown. Some 76,000 acres are under cultivation, but the tourist industry is the principal source of the islanders' income. A railroad of 47 miles links the large centers. During the war the island contained several internment camps for enemy aliens.

ITALIAN EAST AFRICA. Name by which Italy called her East African possessions after she had conquered and annexed Ethiopia in 1936 and placed it together with her former colonies of Eritrea and Italian Somaliland under one administrative head. British troops occupied Italian East Africa in July 1941, and Emperor Haile Selassie of Ethiopia returned to his throne. In early October 1945 the postwar status of Eritrea and Italian Somaliland had not been determined. See also ETHIOPIA.

Italian Somaliland.—Prior to incorporation in Italian East Africa in 1936 as the "Government of Somalia," this colony had an area of 194,000 square miles, and a population (1931) of 1,021,572, of which 1,631 were Italians. The area was increased as a result of the 1936 Italian conquest to 271,042 with a population of 1,300,000. The capital is Mogadiscio (captured by British Imperial troops Feb. 25, 1941) with a population of 55,000 (8,000 Italians). Cattle raising and agriculture are the principal occupations. Exports in 1937 included sesame oil, gum, hides, butter, cotton and cottonseed oil, resin, kapok, fruit and bananas, and amounted to 40,675,000 lire. Imports including cotton goods, sugar, rice, tea,

coffee, iron, machinery, oils, tobacco, wines, and timber, totaled 378,817 lire in the same year. The revenue for 1935–36 amounted to 70,750,000 lire, and expenditure (both civil and military) totaled the same amount. There are 28 wireless telegraph stations, and 29 principal post offices and 17 secondary post offices in the country.

Eritrea.—The total area of Eritrea, prior to its enlargement in 1936 at the expense of Ethiopia and incorporation as one of the five states or governments of Italian East Africa, was 15,754 square miles (after the Italian conquest of Ethiopia increased to 89,274 square miles). The population according to a 1939 estimate was 1,500,000, and that of the capital, Asmara (captured by Allied troops April 1, 1941), was about 85,000, including 50,000 Italians. The only good port is Massaua (pop. 15,000), connected by a 75-mile railway with Asmara on the plateau at an elevation of 7,765 feet. A majority of the natives are Christian (of the Coptic rite) and Mohammedan. Three salines on the coast produce about 200,000 tons of salt every year, and gold mines near Hamasien are in production. At Massaua and in the Dahlach Archipelago pearl fishing is carried on. Most of the country is given to agriculture and pasture. There are 333 miles of railroad, 33 post offices, 1,442 miles of telegraph wire and 12,679 miles of telephone lines. During United Nations discussions regarding the fate of the Italian African colonies in late 1945 Russia suggested that Eritrea be awarded her as a mandate. The United States, Britain and France opposed the idea. It was also proposed that a corridor through southeastern Eritrea be awarded to landlocked Ethiopia, giving that country access to the Red Sea. The ceded territory would adjoin French Somaliland and probably include the port of Assab.

ITALY. The occupation of Rome by Allied forces June 4, 1944 occasioned another change in the form of the Italian government. Until mid-1943 Italy was theoretically a constitutional monarchy of which Victor Emmanuel III, who had succeeded his father, King Humbert I, on July 29, 1900, was the crowned head; actually, however, from Oct. 30, 1922, when Benito Mussolini became premier under Fascist auspices, until July 25, 1943, when Allied military pressure, causing a series of cataclysmic Italian reverses, forced the premier to resign, the government of Italy represented a Fascist dictatorship. On the latter date Mussolini was deprived of his posts as prime minister and president of the Council of Ministers, and placed under arrest by Marshal Pietro Badoglio acting in concert with King Victor Emmanuel. However, he was later rescued by agents of Adolf Hitler, German dictator, who set the Italian dictator up as head of a puppet government in northern Italy, then still held by Axis forces.

Marshal Badoglio was named Mussolini's successor as premier, and on Sept. 8, 1943, he negotiated the terms of Italy's surrender to the United Nations. In accordance with the terms of an agreement reached between Victor Emmanuel and a coalition of six anti-Fascist parties, the king resigned June 5, 1944, in favor of his son, Crown Prince Humbert who was designated lieutenant general of the realm. Synchronously the transitional Badoglio government resigned and was superseded by a government, headed by Ivano Bonomi, containing representatives of all the anti-Fascist parties. The Bonomi Cabinet yielded to that of Prof. Ferrucio Parri on June 17, 1945. In the meanwhile, Mussolini had been captured and shot by patriots on April 28, and within the next three days the German Army in Italy as well as Marshal Graziani's Fascist Army had surrendered, on the eve of Germany's unconditional surrender and the end of the war in Europe. The Allied peace settlement with Italy was delayed by the failure of the Council of Foreign Ministers in September to come to an agreement on procedure. The ultimate decision as to the form of the Italian government, whether monarchical or republican, cannot be made until after the peace. While most of the anti-Fascist leaders, headed by Count Carlo Sforza, are committed to a republic, the powerful British influence which vetoed Sforza's position in any Cabinet as premier or foreign minister, is exerted for retention of the monarchy.

Area and Population.—The total area of Italy proper, including Sicily and Sardinia, is 119,764 square miles. The length of the peninsula is 760 miles, while its breadth nowhere exceeds 150 miles. The area of the four provinces of Libya comprising Tripoli, Misurata, Bengasi and Derna, but not including the territory of Libyan Sahara, is 213,876 square miles with a population of 66,287 (census of 1936). These African provinces were incorporated in the national territory of Italy by a decree of Jan. 9, 1939.

The Oct. 31, 1943 population figure for Italy was given in the *Statesman's Year-Book* as 45,637,000. The last regular census of 1936, when the population was close to 43,000,000, showed a density of 359 per square mile for the whole kingdom including Sicily and Sardinia.

In 1939 there were in Italy 22 cities with populations exceeding 100,000. The ten largest cities were: Rome, 1,327,000; Milan, 1,115,848; Naples, 925,325; Turin, 698,096; Genoa, 659,665; Palermo, 434,311; Florence, 354,975; Bologna, 318,444; Venice, 285,833 and Trieste, 261,368.

Education.—In the Middle Ages, Italy attracted a large number of sudents to her institutions of higher learning. The University of Pavia was first known as a center of learning in 825. The University of Bologna, founded in 1200, consisted of a corporation of students who hired professors to teach them. During the 13th century five more universities were founded: Naples, Padua, Genoa, Perugia, and Macerata. Ten were founded between 1300 and 1550.

In recent years much progress has been made in combating illiteracy, especially in the southern provinces. Today elementary school education is free and compulsory. There were in 1937–38 a total of 134,406 elementary schools, 2,516 government secondary schools. The teaching personnel of the 26 state universities numbered 7,490. At the end of 1938 there were 4,918,631 pupils registered in the elementary schools, 613,588 in the secondary schools and 77,429 in the universities and higher institutes.

Religion.—The Treaty of the Vatican of Feb. 11, 1929, confirmed the principle that the Catholic Apostolic Roman religion is the religion of the state; however, there is freedom of religion so long as other creeds do not violate public order or moral behavior. Catholic religious teaching is given in elementary and secondary schools. In accordance with the concordat of 1929, a church ceremony is sufficient to make marriage legally valid; a civil ceremony is optional.

There were in Italy according to the census of 1931 more than 41,000,000 Catholics (99.6 per cent of the total population). The remaining .4 per cent is divided as follows: 83,618 Protestants, 47,825 Jews and the remainder Greek Orthodox

Catholics, Moslems and those who profess no religious sect.

The measures adopted towards foreign and native Jews since 1938, which have been described as of a racial and political rather than religious nature, were repealed Aug. 1, 1944 by Premier Badoglio. The religious status of the Jewish communities in Italy theoretically had not been affected by these measures.

Agriculture.—The 1945 wheat crop, most important of all Italian crops, suffered heavily from dry weather in the south, Sicily and Sardinia; the estimated 4,180,000 metric tons indicates the smallest harvest since 1920, and roughly two thirds of the 1944 crop. Maintenance of the bread ration is dependent on increased wheat imports. The production of barley, oats and rye was reduced from the 1944 figure in about the same proportion. The Indian corn crop, despite greatly increased plantings, was normal at 230,000 tons. The yield of 400,000 tons of rice was below normal, while dry legumes (beans, peas and broad beans) suffered severely. A late September estimate indicated that an olive crop of between 900,000 and 1,000,000 tons would be less than the large 1944 crop.

Minerals.—In 1938 (latest figures available) the following products were extracted from Italy's subsoil: 360,837 (in metric tons) of bauxite, 990,043 of iron ore, 195,523 of mercury ore, 67,493 of lead, 200,848 of zinc, 930,312 of iron pyrites, 355,007 of sulphur (1939), and 48,292 of manganese. During the same year, the following metric tons of metals were produced: 864,536 of pig iron, 2,322,856 of crude steel, 48,412 of lead, 33,744 of zinc, 25,767 of aluminum, 4,700 of copper, and 2,301 of mercury.

The loss of Sicily to the Allies on Aug. 17, 1943, deprived Germany of her chief source of sulphur. During the first seven months of 1939, Germany imported 34,933 metric tons of sulphur, of which 31,924 came from Italy, most of it from Sicily. The Sicilian sulphur production in January 1945 amounted to 3,354 metric tons, and in February to 2,731 tons.

Industry.—A late September 1945 estimate indicated that if quotas of coal and raw materials requested under the Eessential Import Program for the remainder of the year were fully supplied, the following industries would be able to attain these percentages of normal production: textiles, 50 (but rayon, 25); chemicals, 50; fertilizers, 75; nonferrous metals, 33; paper, 60; food products, 70; leather and shoes, 70; glass, cement, bricks, light bulbs, and miscellaneous, about 50. The chemical industry of northern Italy, though about 85 per cent intact, is hampered by a lack of materials and transport. The important Solvay soda plant near Livorno (Leghorn), which formerly supplied about 80 per cent of Italian needs for soda, has been repaired. Production began at the end of May with a daily output of 200 tons of sodium carbonate, sodium bichromate, and caustic acid. The schedule was to be increased to 450 tons daily in three months.

Foreign Trade.—The prospects for large-scale exports are dark for some time to come. The volume of 1945 trade may be judged by the fact that exports under Allied auspices in 1944, and through eight months of 1945, amounted to only 167,000 metric tons valued at about $18,000,000 and subsidized to a considerable extent by the Italian government. Of these, products valued at about $2,000,000 went to the United States, $8,000,000 to the United Kingdom, $4,000,000 to Malta, and about $4,000,000 to France, Greece, Yugoslavia and other countries. With a view to resumption of normal commercial relations Italy negotiated her first trade agreement with Switzerland, announced by the Ministry of Foreign Affairs on August 14. The Foreign Economic Administration sponsored American shipments to Italian civil supply authorities of basic supplies during the last four months of 1945, the types and quantities recommended by the Allied Commission in Rome. September shipments included more than 350,000 tons of coal and 100,000 tons of wheat, as well as petroleum products and miscellaneous foods.

Finances.—The Italian government estimates its war damages at approximately 2 trillion lire ($20,000,000,000, the lire now equaling 1 cent, United States currency). For the year ending June 30, 1945, the revenue of 36 liberated provinces amounted to 13 billion lire, while the expenditures were 73 billions. Efforts to improve the national budget have centered on the floating of 5-year 5 per cent treasury bonds. In May and June, southern Italy subscribed 32,000,000,000 lire to this loan, and later northern Italy reached a total of 45,000,000,000 lire, up to August 14. On June 30, 1943, the total debt had mounted to 405,823,000,000 lire.

Military.—Service in the army (or navy) is compulsory for all males, with service liability within the age group of 21 to 55. The normal training period for all arms is 18 months. The army is divided into the metropolitan army under the Ministry of War and the colonial troops under the Ministry of Italian Africa. The metropolitan force had a normal peace establishment of 260,000 organized in 17 army corps, 1 armored and 1 motorized army corps. At the time of Italy's entrance in the war, in June 1940, her army was estimated to have a strength of 64 divisions. The Carabinieri, rural military police, in 1938 were numbered at 52,000. After Italy broke away from Germany in 1943 and became a co-belligerent with the Allies, the army was reorganized and early in 1945 six divisions had been reformed and re-equipped for field service with the Allies. Italian air units also operated in the Mediterranean with the United Nations forces.

In compliance with the armistice terms the surviving units of the Italian navy assembled at Malta; more than 100 ships reached the island, including 4 battleships, 8 cruisers and 12 destroyers. The personnel consists of 4,139 officers and 75,000 men. See also under NAVAL EDUCATION; NAVAL PROGRESS.

Transportation and Communication.—Italian roads in 1940 totaled 204,566 kilometers (126,830 miles), of which 21,456 kilometers were state roads, 46,500 provincial, 126,800 communal, 9,300 consortial, and 510 auto highways. Railways totaled 23,252 kilometers on June 30, 1939. Of the total length of railways in operation at the end of the 1942 fiscal year, 17,172 kilometers were operated by the state and 6,080 by private enterprise under state supervision. Of the state-owned lines, 5,173 kilometers were electrified.

In June 1938 there were in Italy 11,396 post offices, 10,044 telegraph offices, and 611,254 telephones. Registered motor vehicles (excluding government and military motor vehicles) totaled 703,158 in 1939, of which 345,098 were privately owned pleasure cars. During 1938 Italian air traffic totaled 8,419,493 miles, with 140,815 passengers.

A canal six miles long to connect Rome with the Mediterranean, enabling ocean-going vessels to reach the city, was planned early in 1943, two

years after completion of plans for the considerably longer ship canal between Milan and Venice.

The end of the war in Europe in May 1945 found the Italian transportation system in utter disrepair and confusion. Through the remainder of the year, with transportation functioning at only one third its normal capacity, this became the government's major problem. Locomotives and trucks were hoped for through United States surplus-property disposal. Without greatly improved transportation Italy will be unable to handle the coal and raw materials which are being shipped by the Allies.

Economy.—After the liberation of north Italy in May 1945, unemployment immediately became a critical problem, especially in the north where lack of coal and raw materials forced a stoppage of industry. An official estimate of September was that in October there would be at least 2,000,000, and possibly 3,000,000, unemployed. Normal industrial employment (1936) was about 5,375,000. Hundreds of thousands of unemployed and semiemployed workers were carried on industrial pay rolls, partly at government expense, with resultant heavy strain on private industry. Government efforts to provide employment include a public works project costing 50,000,000,000 lire and giving 200 days' employment to an estimated 450,000 workers. Though wage increases approximately doubled working-class income during the first half of 1945, and total food expenditures were relatively stable, the average family was still far from able to meet the expenses of a food budget providing 2,200 calories daily per adult. In Rome the purchasing power for food during July was estimated at only about 40 per cent of the 1940 level. Black market operations in foodstuffs, especially olive oil, are rife, despite the government's efforts at suppression. The price of meals in third-class Roman restaurants during the fall of 1945 was about 350 lire ($3.50).

Principal Events.—The year 1945 began with German forces still fighting a desperate rearguard action in the north against the American Fifth and British Eighth armies which included French, Polish and Brazilian divisions, as well as several Italian. On January 9 the enemy dug in for a stand along the southern bank of the Reno River near Passo di Primaro at the eastern end of the line. Five days later it was reported that they had been reinforced by a fresh division from Norway and several Fascist Italian divisions trained in Germany. However, the Allies continued to advance, and on the 19th wiped out a German bridgehead on the east bank of the Senio River.

A new Italian news agency, the Agenzia Nazionale Stampa Associata (National Associated Press Agency) began to function on January 15 to replace the psychological warfare branch of the Allied command as the source of news for Italian newspapers, and the Allied Commission in Italy announced the printing of 1,000,000 textbooks for a re-education campaign designed to eradicate Fascist teachings from the minds of the children. Three days later Alberto Tarchiani, noted journalist and anti-Fascist, was appointed ambassador to the United States.

Acting Secretary of State Joseph C. Grew issued a statement early in February denying that the Italian armistice terms required Italy to give up her colonies. On February 14 it was announced that the Grand Rabbi of Rome and his wife had become converts to Catholicism. Two days later Dr. Joseph Schwartz, European director of the American Jewish Joint Distribution Committee, announced that only 20,000 of the former 50,000 Italian Jews remained in Italy.

Beginning March 1 the bread ration for Italians was raised from a daily 200 to 300 grams per person, or the equivalent in bread and macaroni. Gen. Mario Roatta, principal defendant in a six-weeks-old trial of 15 Fascist leaders in Rome, involving crimes of the Fascist foreign policy, escaped from his room at an army hospital on March 4. Though the government was guiltless of connivance, and offered a reward of 1,000,000 lire for his apprehension, a serious riot occurred in Rome two days later at the termination of a mass meeting called in protest at his escape. The Cabinet of Premier Ivano Bonomi, however, weathered this crisis, and on March 12 Roatta was sentenced to life imprisonment in absentia. Fulvio Suvich, former ambassador to the United States, and Lieut. Gen. Francesco Jacomini, former viceroy of Albania, received 24-year terms. Filippo Anfuso, Fascist ambassador to Germany, also in hiding, received the death sentence. Only 4 of the remaining 11 defendants were acquitted. On March 15 three of the liberated Dodecanese Islands — Simi, Nisiro and Stampalia — unanimously requested union with Greece. Pope Pius XII in his Passion Sunday (March 18) address condemned the "advocates of violence" and the "idolatry of absolute nationalism, the pride of race and blood, the desire for hegemony in the possession of worldly goods." On March 20 Umberto Nobile, the Arctic explorer and scientist, was reinstated in the Italian Air Force with rank of major general. He had been cashiered by the Fascist government in 1929, charged with responsibility for the crash of the dirigible *Italia* the year before. On March 25 Lieut. Gen. Ira C. Eaker, air chief in the Mediterranean theater, disclosed that his command had lost more than 20,570 men, 100 per cent of its strength, within the prior twelve months, as well as 2,050 heavy bombers. Two days later two American soldiers were sentenced by a court-martial in Rome to hang for the murder of an Italian in the course of a wineshop robbery.

On April 5 the Yugoslav government released proofs of German and Italian atrocities against civilians and the military. Photographs of instruments of torture, and the acts being carried out, were included. The duke of Aosta was dismissed from his post as an admiral in the navy on April 8, because of a remark he had made condemning the judges at the trial of General Roatta. The American Relief for Italy reported that in the year since April 1944 it had sent 7,186,000 pounds of vital relief supplies to liberated Italy. The purge of Fascists continued with 25 of 63 defendants found guilty by the Italian ministry of the royal house on April 18. When Crown Prince Humbert visited liberated Bologna a week later he received a surprising popular ovation. On April 28 Benito Mussolini, founder of fascism and ruler of Italy for over 20 years, was executed near Dongo with his mistress Clara Pettaci, after a summary trial by their Italian captors who had apprehended them two days before as they attempted to escape from Como after having been denied admission to Switzerland. The bodies were conveyed to Milan and dumped in a public square where they were mutilated by the angry mob. Among the Duce's followers, captured at the same time and summarily executed, were Alessandro Pavolini, Francesco Maria Barraci, Dr. Paolo Zerbini, Ruggero Romano, Fernando Mezzasoma, Augusto Liverani, Carlo Scorza, Guidi Gasti, Goffredo Coppola, Ernesto Daquanno, Ma-

rio Luigi, Vito Casalnuovo, Pietro Salustri, Marcello de Facci and Nicolo Bombacci. Most of these were officials in the Fascist government. It was reported that the day before this mass execution Roberto Farinacci, at one time secretary general of the Fascist Party, was tried and shot at Milan. Another former secretary general, Achille Starace, was executed at Milan on April 29. The following day the Italian government requested that Trieste and all Venezia Giulia Province, occupied by Marshal Tito's Yugoslav troops, be governed by Allied military authorities, according to the terms of the armistice.

April also saw the crumbling and final collapse of German and Fascist resistance. Elements of the Fifth and Eighth armies captured Bologna on the 21st. Two days later they crossed the Po at several points, and also captured Modena, La Spezia and Ferrara. By the 25th the Germans were in headlong flight as Fifth Army forces reached the Mantua area seven miles beyond the Po, while French and British ships shelled points on the Italian Riviera between Oneglia and Ventimiglia. The same day Yugoslav troops crossed the Italian border at Clana; on the next, Allied forces captured Verona and Parma, by-passed Mantua and crossed the Adige River near Verona. Synchronously Italian patriots seized control of Genoa, Turin, and Milan, drove out the Germans and killed the native Fascists. On April 29 Fifth Army elements entering Milan found the bodies of Mussolini and his mistress hanging by their feet from the beams of a gasoline station. The same day the Eighth Army occupied Venice. Other places occupied were Padua, Mestre, Vicenza and Como. On the last day of April as the Fifth Army entered Turin to find it in control of the patriots, Gen. Mark W. Clark announced from Rome that the German armies in Italy had been "virtually eliminated as a military force," and that only mopping up remained. The day before at Caserta the Germans had signed terms of unconditional surrender to take effect at noon on May 2, involving 1,000,000 men in land, sea and air forces. The surrender became effective just 20 months after the Allies invaded Italy and the day on which Berlin fell to the Russians.

On May 1 Marshal Rodolfo Graziani, commander of Fascist troops, announced the unconditional surrender of his Ligurian Army; while Secretary of War Stimson in Washington disclosed that the United States Fifth Army casualties through April 28 amounted to 21,577 killed, 77,248 wounded and 10,338 missing. The next day the Italian government established diplomatic relations with the Lublin Polish government. On May 3 Italy decreed the death penalty for "serious cases" of banditry, on account of an alarming increase in crimes of violence. Yugoslav forces by this time had entrenched themselves in Venezia Giulia province and its chief port Trieste, contravening the terms of the Italian armistice. On May 19 Field Marshal Sir Harold R. L. G. Alexander, commander of the Mediterranean theater, compared Marshal Tito's seizure of Trieste to methods "reminiscent of Hitler, Mussolini and Japan." The American Army, supporting Acting Secretary of State Joseph C. Grew's declaration of a week before opposing Tito's claims, released a statement that Tito had agreed in July 1944 to Allied Military Government occupation of Trieste and had now broken his pledge. Marshal Tito expressed bitter resentment at this charge and declared that the Yugoslav Army had equal rights with other Allied armies "to remain in the territory she has liberated." On May 20 it was reported that United States troops were withdrawing from Trieste, until then jointly occupied with the Yugoslavs. The situation was extremely tense; but the following day's reports contradicted the withdrawal and revealed that reinforcements had been sent to the Gorizia-Trieste area, while Yugoslav troops continued evacuation of the adjacent Austrian provinces of Carinthia and Styria. On May 23 Col. Gen. Heinrich von Veitinghoff-Scheel, commander of the German forces in Italy, was taken into custody. American university researchers estimated that the Second World War had cost Italy through 1944 the equivalent of $94,000,000,000.

On June 5 Pietro Koch, convicted as a torturer of political prisoners in collaboration with the Germans, was executed in Rome. Two days later an agreement was finally reached with Marshal Tito and a pact signed at Belgrade providing for temporary administration of the province of Venezia Giulia, including Trieste, by the Allied military authorities. All but 2,000 Yugoslav troops were to be withdrawn, and this token force was to be stationed in a specified zone under Marshal Alexander's command. The Yugoslavs agreed to return residents whom they had imprisoned or exiled and to make property restitution. Three days later British and American authorities took control of the contested port, to the great joy of the Italian residents. On June 14 French troops occupying the Val d'Aosta region near the French border began withdrawing, in accordance with an agreement made two days earlier by General de Gaulle to evacuate the entire strip of western Italy occupied by French troops.

A leader of the Partisan forces in the north, Professor Ferrucio Parri, was selected by the Committee of National Liberation on June 17 to be premier of a new government succeeding the Bonomi Cabinet which had resigned five days previously. On the 20th the former chief of staff Marshal Graziani, Gen. Gastone Gambara, who headed the expeditionary force to Spain during the civil war, and five other generals were indicted in Rome for high treason. At Trieste a pact was signed on the 20th between Anglo-American and Yugoslav authorities partitioning the Venezia Giulia province pending its fate at the peace conference. The exact boundaries of Marshal Tito's occupation zone were thereby estasblished, with the Allies in occupation of Trieste and Gorizia. Premier Parri's Cabinet was sworn in by Prince Humbert on the 21st, its members representing all six parties of the Committee of National Liberation. On the same day crowds of demonstrators in Milan at the Allied Military Government offices demanded bread, work and a more severe purge of Fascists.

The Allied Control Commission in Rome announced on July 1 that Italians captured in North Africa might return to their former positions in the Italian armed forces. On July 11 the Italian Cabinet granted "local autonomy" to the Val d'Aosta region along the French frontier. Next day the British Admiralty stated that up to the time of Germany's surrender the Allies had sunk 65 Italian submarines. Premier Parri on July 13 said that under the armistice terms "an effective moral and material reconstruction is not possible," and that he thought "we deserve a better status than we have now." On the 14th Italy declared war against Japan. Two days later it was revealed that the recent arrest in Trieste of the editor of a Communist newspaper and 44 others resulted from discovery of a plot to sabotage Allied military authority. The same day Premier Parri de-

clared that his government felt that opportunity should be given Italy to colonize, and that her colonists and investments in North Africa were essential to Italy's position as a Mediterranean power.

Gen. Joseph T. McNarney, American commander in the Mediterranean theater, announced on July 18 that new plans called for an all-over occupation force of about 28,000 United States soldiers to remain in Italy, ten times the original number planned. The next day an Allied military tribunal in Milan passed the death sentence on Fermo Lini for plotting the killing of Fascists or seizure of their property. On the 22d the Roman police were compelled to resort to firearms to quell rioting of 1,000 inmates of the Regina Coeli Prison. A British military tribunal on July 28 at Bari sentenced to death Gen. Nicola Bellomo for having killed a British officer and trying to kill another while they were prisoners of war. On the 29th the British Eighth Army was disbanded, and the next day Field Marshal Alexander announced in Rome the dissolution of the Mediterranean Allied Air Forces.

The Allied Commission in Rome announced on August 2 that foreign nations would be permitted to deal directly with the Italian government or commercial agencies without passing through Allied control channels, and that, effective in 48 hours, all Italy, except that part north of Bologna, would be returned to Italian sovereignty. The same day Pietro Mascagni, the famous composer of *Cavalleria Rusticana*, died in Rome. The United Nations Relief and Rehabilitation Administration in London approved aid to Italy on the 22d. Countess Edda Ciano, Mussolini's daughter, was deported to Italy by the Swiss government on the 30th.

The Council of Foreign Ministers of Britain, the United States, Russia, France and China, the Big Five, met in London on September 11 to settle matters of procedure and start work on the peace treaty with Italy. On the same day the American Fifth Army, according to an announcement from Rome, became "unoperational," its headquarters reduced to a skeletal basis; and General Bellomo, convicted in July, was executed by a Rome firing squad. The next day the Council of Foreign Ministers invited all the United Nations which had declared war on Italy to submit their views on the peace with that country. According to a London report of September 15 the United States plan submitted to the council would strip Italy of all her colonies and place them under some sort of international trusteeship. Russia won a point by getting the council's agreement to invite the Soviet republics of White Russia and Ukraine and the Polish government to express their views on the peace settlement with Italy. Two days later the council announced its inability to prepare a draft of a peace treaty for Italy at the current session, that the matter would have to be deferred until the next session which was tentatively set for about a month after the present session should end. On the same day Greece protested to the British Foreign Office because she was not invited to present her views on Italy. On the 22d, the United States delegation requested the council to agree that no reparation demands be made of Italy and that the so-called Wilson Line be a basis for establishing the Italo-Yugoslav frontier, with modifications favoring Yugoslavia in the north and Italy in the south. It was suggested that Trieste go to Italy with "a substantial part" of its port being made a free port, that the Dodecanese Islands go to Greece, and that Libya and Eritrea be promised independence after a 10-year trusteeship.

In a statement submitted to the Allied Council in Rome on November 3, Marshal Tito's Yugoslav troops were accused of committing atrocities and deporting Italians in the Venezia Giulia area. Yugoslav Roman Catholic bishops charged that 234 priests had been killed. On the 6th, the Italian armistice terms, after having been suppressed for more than two years at the behest of American military authorities, were simultaneously announced in Rome, London, and Washington. Signed by General Eisenhower and Marshal Badoglio, they were set forth in two agreements of Sept. 3 and 29, 1943, and modified by 44 additional conditions on Nov. 9, 1943. On Nov. 7, 1945, Italy made the following proposals regarding territory: (1) Italy to retain sovereignty over Ethiopia, Tripolitania, Eritrea, and Somaliland, but to give Ethiopia a free port; (2) Dodecanese Islands to be surrendered, but Italy to have a special status in Rhodes; (3) Albania to be independent but the Albanian port of Kotor to be demilitarized; (4) Fiume and Zara to be given to Yugoslavia; (5) Trieste to become an international port under Italian sovereignty; (6) Southern Tyrol to get autonomy; (7) Franco-Italian frontier to be adjusted. Due to a difference over proposed broadening of the Parri government, the three rightist parties—Christian Democrats, Democratic Labor, and Liberals—withdrew from the Cabinet. Premier Parri thereupon resigned. After Vittorio Orlando, First World War premier, had failed to form a coalition Cabinet due to leftist opposition, ex-Foreign Minister Alcide de Gasperi, was selected as premier by the Committee of National Liberation. With his six-party Cabinet, the sixth since the Allied invasion, he took office on December 10.

IVORY COAST. See FRENCH WEST AFRICA.

IWO JIMA, Battle of. See MARINE CORPS, UNITED STATES; WORLD WAR, SECOND.

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JACKSON, Robert Houghwout, United States Supreme Court justice: b. Spring Creek, Pa., Feb. 13, 1892. On May 2, 1945, Justice Jackson was named chief American counsel on the United Nations War Crimes Commission, an international military tribunal set up for the trial of war criminals. (He retained his seat on the Supreme Court bench.) He arrived in Paris on May 25, and on June 7, outlined plans for organization of an international court which would include Britain, France, and Russia. From London on July 6, he announced that these powers with the United States had agreed on three principles governing the trials—the accused

shall be entitled to a fair hearing; they shall have the right to develop things that can be said in their defense; the trials shall not be subjected to defendants' obstructionist tactics. With the release on August 7 of a list of 10 former Nazi leaders slated for trial at Nuremberg in September, it was indicated that Justice Jackson was expected to prosecute this first group himself. (The list included Göring, von Ribbentrop, von Papen, Rosenberg, Keitel, Ley, Streicher, Seyss-Inquart, Frank, and Jodl.)

JAMAICA. A West Indian island 90 miles south of Cuba, constituting a British colony. The area is 4,450 square miles, and the population according to the 1943 census numbered 1,237,063. The Turks and Caicos Islands (area, 165.5 square miles; pop. 5,300) and the Cayman Islands (104 square miles; pop. 6,670) are dependencies of Jamaica (see below), and the Morant Cays and Pedro Cays are also attached to the colony. Kingston (pop. 1943 census, 109,056) is the capital and principal port. Kingston's Mona Reservoir, on the Hope River, is the largest single engineering project ever undertaken in Jamaica; when completed in 1947 at a cost of £460,000, it will store 700,000,000 gallons of water. The United States secured naval and air bases on 99-year lease in 1940, these comprising a fleet anchorage of two square miles in Portland Bight, the 50-acre Pigeon Island, and four tracts of land having an aggregate area of 278 square miles. An ancient burial cave found in 1945 at Cambridge Hill, in the parish of Saint Thomas, contained the remains of 40 or more aboriginal Indians, together with a large variety of early pottery in an excellent state of preservation. The governor (captain general and governor in chief) is Sir John Huggins (appointed July 7, 1943). He is assisted by an Executive Council of 10 members (5 of whom are elected from their number by the House of Representatives), a Legislative Council (having a clear majority of unofficials), and a House of Representatives of 32 members elected by universal adult suffrage; in order to develop the ministerial system of government, numbers of committees in the House of Representatives deal with general purposes, agriculture, education, social welfare, and communications. The new constitution providing for the foregoing legislative machinery was promulgated Nov. 20, 1944; the present system is to be tried out for a full electoral period of five years. Elections for the House of Representatives in December 1944 proved a landslide in favor of the Labour Party, which secured 23 seats; the People's National Party obtained 4, and the Independents 5, the Democratic Party being wholly unsuccessful. The Labour Party is not socialistic in its program, supporting private enterprise and harmonious relations between capital and labor. Budget estimates for 1944–45 indicated revenue of £5,490,537, and expenditure of £6,319,116.

Education.—There are 668 public elementary schools, with an enrolment (1943–44) of 163,556; 2 secondary schools were in receipt of government grants, and there are 4 vocational schools and 4 training colleges for teachers. In addition, besides 7 industrial schools, there are secondary and high schools, some endowed, which receive grants-in-aid from the government. The West India Committee of the Royal Commission on Higher Education in the colonies recommended in July 1945 that a University of the West Indies be established in Jamaica, providing faculties of arts and science, medicine, and agriculture and agricultural science, together with departments of education and extramural studies; the capital cost of the project, estimated at £1,130,000, was to be provided by the British government, and maintenance would be met by contributions from the colonial governments, from endowments and fees.

Production.—Only about 400,000 acres of Jamaica's total area of 2,818,160 acres consist of flat land, and much of this is not utilized. A hurricane on Aug. 20, 1944, destroyed approximately 90 per cent of the banana trees and 41 per cent of the coconut palms, disastrously affecting two of the island's most important crops. Whereas 130,000,000 coconuts are gathered in a normal year, production in 1945 was not expected to exceed 75,000,000. Sugar cane, the principal agricultural product, was affected also, the estimated output of sugar in 1945 falling to 150,980 tons. Other crops grown in Jamaica include coffee, ginger, grapefruit, oranges, pimento, and tobacco. Livestock numbered (1940–41) 128,270 cattle, 10,390 sheep, 24,312 horses, mules, and asses. Guinea grass, four to six feet in height, which grows wild, affords excellent pasturage; and the forests yield dyestuffs (Jamaica is the largest producer of annatto), drugs, spices, and rare cabinet woods. Exports in 1943, valued at £3,840,488, comprised sugar, rum, citrus pulp, bananas, pimento, coffee, ginger, cocoa, and coconuts. Textiles and foodstuffs were the principal imports, which had an aggregate value of £5,515,034 in 1943. A law enacted in 1944 provided that until Dec. 31, 1950, construction materials for building hotels, and equipment for the furnishing and use of hotels, may be imported duty-free on license.

Communications.—The entire island is intersected by excellent highways having a total length of 6,942 miles; two thirds of the roads are surfaced with water-bound macadam. There are also 26.5 miles of electric, 119 miles of steam, and 73 miles of mule tramways, and 3,725 feet of ropeways. Railway mileage in the island is 212.5; there are 2,581 miles of telegraph and 2,819 miles of telephone lines (exclusive of military lines). The British West Indian Airways instituted in March 1945 a service to Belize, British Honduras, and the Royal Dutch Airlines operates between Kingston and Maracaibo, Venezuela.

Turks and Caicos Islands.—This dependency of Jamaica lies 450 miles to the northeast; the largest island is Grand Caicos, and the capital is situated on Grand Turk, named for the indigenous turban-shaped cactus. The total area of the dependency is 165.5 square miles, and the population numbered 5,300 in 1940. Administration is in the hands of a commissioner (E. P. Arrowsmith), who is assisted by a legislative board of 5 nominated members. There are 14 elementary schools (11 of them operated by the government) with an enrollment of 973, and a secondary school with 157 pupils. Salt raking is the chief industry on the Caicos islands, the product being considered the finest in the world; other industries of the dependency include lobster canning and sponge fishing. Exports, principally salt, had a value in 1940 of £38,213, and imports, chiefly cotton textiles and foodstuffs, amounted to £30,133.

Cayman Islands.—This dependency, 200 miles northwest of Jamaica, comprise Grand Cayman, Little Cayman, and Cayman Braç; the total area is 104 square miles, and the population in 1943 numbered 6,670. Grand Cayman contains two towns—Georgetown (pop. 1,462), the capital, and Boddentown; government is conducted by a

commissioner responsible to the governor of Jamaica. There are 13 government elementary schools, with 869 pupils, and 6 private schools. Turtle fishing and shipbuilding are the principal industries, and coconuts are grown extensively on the smaller Caymans. Exports in 1942 were valued at £9,762, and imports at £55,072. See also BRITISH WEST INDIES.

JAPAN. Far Eastern island-empire, reduced by military defeat to the territorial status it had before the modernization of the country in 1867. Acceptance of the Potsdam terms of unconditional surrender has drastically restricted Japan's sovereignty for an indefinite period. It was understood before this acceptance that the emperor would retain his prerogatives for the time being in order to carry out orders to be issued by the Allied Supreme Command. Under Allied directives, Japan is not entitled to maintain foreign diplomatic relations or to make any foreign policy of its own. Its economy is rigidly controlled and its foreign trade is subject to Allied regulation. Japanese legislation is restricted in accordance with the needs and purposes of the occupation; its executive powers are limited to the execution of measures imposed or approved by the Allies. A national government exists, although the Allies maintain the right of ordering changes in its personnel. The occupation, although planned for a long period, is not expected to be permanent. A gradual broadening of Japanese sovereignty is probable in the distant future, after the objectives of the occupation are attained.

Allied Occupational Authorities.—In accord with agreements reached among the Allies before the surrender of Japan, Gen. Douglas MacArthur, commander in chief of the United States Army in the Pacific theater of war, was appointed supreme commander of the occupation. The occupation forces assigned to police Japan are the United States Sixth Army in the south and the United States Eighth Army in the north. At the Moscow conference of the Foreign Ministers of the U.S.S.R. and the United Kingdom, and the United States Secretary of State (convened December 16-26), a Far Eastern Commission and an Allied Council for Japan were established.

The Far Eastern Commission, composed of representatives of the U.S.S.R., the United Kingdom, the United States, China, France, the Netherlands, Canada, Australia, New Zealand, India, and the Philippine Commonwealth, shall have its headquarters in Washington, D.C. Its functions are to formulate policies and principles concerning the fulfillment of the Japanese obligations under the surrender terms and—upon request—review directives given to or actions taken by the supreme commander. It will respect existing control machinery in Japan. The United States government may issue interim orders to the supreme commander whenever urgent matters arise, provided that any directive dealing with fundamental changes in the Japanese constitutional structure or in the regime of control, will be issued only with the agreement of the Far Eastern Commission.

The Allied Council for Japan is to be established in Tokyo under the chairmanship of the supreme commander of the Allied forces who shall be the United States member, other members representing the U.S.S.R., China, and the United Kingdom, the latter acting also on behalf of Australia, New Zealand, and India. The purpose is that of consulting with and advising the supreme commander in matters of occupation and control of Japan. This does not alter the fact that the supreme commander is the sole executive authority for the Allied powers in Japan. If, however, on questions concerning a change in the regime of control or fundamental changes in the Japanese constitutional structure, a member of the council disagrees with the supreme commander, the issuance of orders will be withheld, pending agreement in the Far Eastern Commission. In case of necessity, the supreme commander may make decisions concerning changes of individual Japanese ministers or the filling of governmental vacancies after consultation with the representatives of the other Allied powers on the council.

At the time of the publication of the Moscow decisions, far reaching reforms were already imposed upon Japan, thus restricting the sphere of activity of both the Far Eastern Commission and the Allied Council for Japan.

Post-Surrender Policy for Japan.—The purposes of occupational policy, as defined by a White House statement of Sept. 22, 1945, are as follows: To insure that Japan shall never again become a menace to world peace; that a peaceful and responsible government shall support the ideals and principles of the Atlantic Charter; and that this government shall conform as closely as possible to the principles of democratic self-government. The Allied powers do not intend to impose upon Japan any kind of government which is not supported by the freely expressed will of the people.

Japanese sovereignty will be limited to the islands of Honshu, Hokkaido, Kyushu, Shikoku, and such minor outlying islands as may be determined by the Allies. The Japanese people shall be encouraged to develop a desire for individual liberties and respect for freedom of religion, assembly, speech, and the press. They shall also be encouraged to develop democratic practices and political parties.

The Allied supreme commander will exercise his authority through Japanese governmental machinery and agencies, including the emperor, to the extent that this procedure satisfactorily promotes Allied objectives. The supreme commander is empowered to require changes in governmental machinery and personnel or to take direct action if the emperor or other Japanese authorities do not function to his satisfaction. The policy is to use the existing form of government in Japan, but not to support or strengthen it.

Changes on Japanese initiative in the Japanese form of government in the direction of modifying its feudal and authoritarian tendencies are to be encouraged. In case the use of force is involved in such changes, intervention by the Allied supreme command will not go beyond measures to insure the security of occupational forces and the attainment of occupational objectives.

Japan is not to have an army, navy, air force, secret police, or civil aviation. Leading exponents of militarism and aggression are to be taken into custody and held for future disposition. Former professional military and naval officers and other devotees of militarism and nationalism shall be excluded from supervisory and teaching positions. Laws, decrees, and regulations conflicting with the occupational policy are to be voided. The judicial, legal, and police systems shall be reformed to protect individual liberties and civil rights. War criminals, including those guilty of cruelties to prisoners of war, shall be arrested and punished. The Japanese people shall be af-

forded an opportunity to become familiar with the history, culture, and accomplishments of the United States and the other democracies.

To destroy the economic basis of Japanese military strength, the production of all military goods is to be stopped at once. A ban is also imposed upon the facilities for production or repair for all such goods, including ships and aircraft. A system of inspection and control shall be established to prevent disguised military preparations. War industries and potential war industries are to be eliminated. Research and instruction serving military purposes is prohibited. Japanese heavy industries are to be reduced to peaceful requirements and Japanese merchant shipping limited to the same purpose. Pending final decisions, facilities readily convertible for civilian production shall not be destroyed.

Individuals who do not direct the future economic effort solely toward peaceful ends are not to be appointed or retained in posts of importance in the economic field. The dissolution of the big industrial and banking corporations which controlled a large proportion of Japan's trade and industry is in prospect.

The Allies will not undertake the burden of repairing war damage. Japan is expected to provide goods and services to meet the needs of the occupying forces to the extent that this can be done without causing starvation. Japanese leaders are expected to develop programs to avoid acute economic distress, to assure just distribution of available supplies, and to facilitate the establishment of a peaceful economy. They shall be permitted to establish controls over economic activities, under Allied supervision, to further these ends. Reparations shall be made through the transfer of Japanese property located outside of the territories to be retained by Japan, and of goods and facilities within Japan proper which are not necessary for a peaceful Japanese economy or the supply of occupation forces. All looted property which can be identified must be restored to its rightful owners. Japanese authorities are responsible for the management of domestic financial matters, subject to the approval of the Allied supreme commander.

Japan will eventually be permitted to resume normal trade relations with the rest of the world. During the occupation, Japan will be allowed to purchase raw materials and other goods needed for peaceful purposes from foreign countries and to export goods to pay for approved imports. Allied control is to be maintained over all imports and exports, foreign exchange, and financial transactions. Japanese assets in territories detached from Japan, including those owned by the imperial household or government, shall be held at the disposal of the Allied authorities. No Japanese business organization is allowed to give exclusive or preferential opportunities or terms to the enterprise of any foreign country or to cede control of any important branch of economic activity to such an enterprise.

Area and Population.—Pending a final decision about outlying islands, Japan includes only what the official statistics called the "metropolitan area." The size of this area is 114,500 square miles and the population figure was 69,254,148 according to the 1936 census. In 1920, the population of the same area was 55,963,053. The paper added that Tokyo, which once had a population approaching 8,000,000, now has a population of 3,276,547; Osaka, once the second largest city, has 3,092,498, and Yokohama, 2,652,988.

The excess of live births over deaths in Japan is exceptionally high. In the 10 years following 1926, it was given as 15.59, 13.81, 14.47, 12.96, 14.19, 13.19, 15.19, 13.79, 11.86, and 14.85 per thousand respectively. (On Nov. 21, 1945, the Japanese Board of Information, in a Tokyo dispatch, stated that a census of Japan proper, taken November 1, had shown a loss of 297,359 persons since February 1944. Of these, some 240,000 died in air raids, the agency said. Total population was listed as 71,996,477, of which 38,101,834 were women.)

Losses Through Capitulation.—By the act of unconditional surrender, Japan lost the officially incorporated territories of Korea, 85,147 square miles and 21,058,305 inhabitants; Formosa, 13,803 square miles and 4,592,537 inhabitants; the southern part of Sakhalin, 13,934 square miles and 295,196 inhabitants; and mandated islands, statistically listed as "Oceania," with 829 square miles and 69,626 inhabitants (1936 census figures in all cases).

Korea and Formosa, as well as the Kwantung area, leased under pressure from the Nanking government of China, contributed substantially to the metropolitan area's food supplies in exchange for metropolitan industrial goods. Their foreign trade reached a figure of about one third of the metropolitan volume and their exports of grains, cereals, sugar, and other foodstuffs were valued at 908,419,000 yen in 1937. In the same year, the value of metropolitan crops was given as 3,209,297,000 yen. There were 2,262 mines in operation in Korea, 199 in Formosa, and 21 in Sakhalin, against a total of 1,617 in the metropolitan area. Their total output, however, represented only a minor contribution to Japan's needs. Korea produced 58,146 tons of gold and silver ore and 44,698 tons of graphite; Formosa 104,384 tons of gold and copper ore (in 1935). Korea is rich in timber, but there is no timber shortage in metropolitan Japan. Industries established within the severed regions mostly served the armed forces. Under present conditions, they are of importance chiefly for payment of reparations.

In northern Sakhalin—on Soviet territory—the Japanese lost industrial concessions through their defeat which were obtained under pressure during the period of Russian weakness. The resultant loss of industrial equipment is substantial, but the loss of output is only moderate. Northern Sakhalin's oilfields, which produced about 300,000 tons a year in 1931, yielded only a little more than 50,000 tons in 1941. Coal production, too, was never high in that territory and decreased steadily as Soviet authorities hindered Japanese exploitation of the mines.

The loss of fishing concessions is more serious. Japan has had fishing rights in Russian waters ever since the end of the first Russo-Japanese War in 1905. These concessions, vastly enlarged during the revolutionary period in Russia, were gradually curtailed until 1944. Even so, they were an important factor in the urgently needed food supply of the metropolitan area.

Japanese-controlled Manchukuo (Manchuria), furnished few consumer goods to Japan proper before August 1945. Japanese experts did not expect the economic development of Manchukuo to progress far enough to contribute much to Japan's economy before 1950. Huge Japanese factories on Manchurian territory, chiefly in the region of Mukden, produced exclusively for the benefit of the invading armies on the Asiatic mainland.

The Kurile Islands—taken over by Russia—have only military value.

The greatest and almost inestimable loss which the Japanese suffered is the dissolution of their "Greater East Asia Co-Prosperity Sphere," the most ambitious imperialistic project in history. This "co-prosperity sphere," at the high tide of Japanese conquest, embraced—beside Japan proper in its pre-surrender borders—a large part of China, Manchukuo, the Netherlands Indies, the Philippines, Burma, Malaya, Indo-China, Thailand (Siam), and countless Pacific islands. It covered a territory of roughly 3 million square miles (about the size of the United States), inhabited by almost 500,000,000 people (about as many as the British Commonwealth of Nations). Conquest of the rest of China, India, and Australia—the immediate aim of the Japanese war planners—would have enlarged this sphere to include more than 50 per cent of the earth's population and an almost boundless wealth of materials. The Japanese Empire, after organizing its conquests, would have become the unlimited master of the globe.

This grandiose scheme appealed to the lust for conquest and domination of the Japanese militarists and the religious desires of the worshippers of the Japanese emperor, who believed in his mission to rule mankind. More than that, it was viewed very realistically by Japan's economic planners. They wanted the conquered territories to supply the metropolitan area with food and raw materials at incredibly low cost in exchange for metropolitan industrial goods. Although the substandard level of colonial wages would have kept individual industrial consumption very low, the Japanese planners expected that even primitive demands would keep their industries extremely busy and their profits superlatively high.

With the surrender of Japan, these hopes are dashed. Although the co-prosperity sphere had not materialized, important economic infiltrations had already been achieved. It might prove disastrous for Japanese peace production if Allied industries regain the markets previously under Japanese control.

Restrictions on Japanese shipping and the losses sustained during the war are a death blow to the rapidly growing Japanese whaling industry. Japan never adhered to international rules of whale-hunting. Its boats indiscriminately hunted small animals and other specimens protected by international conventions. The elimination of Japanese whaling will benefit other nations, especially Norway.

Political Conditions.—According to the constitution which was promulgated by Emperor Meiji on Feb. 11, 1889, Japan is a constitutional monarchy. Japanese constitutionalism, however, grants very few of the popular rights secured by the constitutions of the United States or Great Britain. The Japanese constitution states that Japan "shall be reigned over by a line of emperors unbroken for ages eternal. The emperor is sacred and inviolable and combines in himself the rights of sovereignty and the power to exercise them." The emperor is identical with the state, and his oath, upon ascending the throne, is not made to his people or his government, but to his ancestors. The emperor is not responsible to any person or agency. By acquiring the "divine treasures of the imperial ancestors" when he ascends the throne, the emperor becomes a deity. These treasures consist of a mirror, a sword, and a jewel. According to the Japanese tradition, these were bequeathed by the first imperial ancestor, the Sungoddess Amaterasu Omikami, to her descendants in perpetuity.

No law can become valid without the emperor's sanction and only the emperor can order a law to be executed. The members of the government, appointed by the emperor, act as his advisers. As such, they are responsible only to him and not to Parliament. The emperor has the right to dissolve the Diet and to rule by decree. He is not only the supreme commander of the armed forces, but he is also exclusively entitled to determine their size and equipment. Judges are appointed by the emperor and are responsible to him alone. The institution of a regency is provided for in the imperial House Law, with the regent exercising the emperor's powers in his name. The Japanese term for emperor is "Tenno" (not "Mikado"), which means "Son of Heaven."

The Diet consists of a House of popularly elected Representatives and a House of Peers. In 1938, the upper house consisted of 413 members. Of the total, 16 belonged to the imperial family, 17 were dukes, 37 marquis, 18 counts, 66 viscounts, and 66 barons (all the foregoing held their seats by right of inheritance); 123 were appointed by the emperor; 4 were members of the Imperial Academy; and 66 were selected from among individuals who paid the highest taxes.

The House of Representatives had 466 members, a large majority of whom were all-out supporters of the government and its policy. The thought of opposition to the emperor's person or his prerogatives never arose. The members of the House of Representatives were elected by 14,401,173 voters, whereas 3,757,097 qualified voters did not cast their ballots. The right to vote, according to the latest laws, is granted to all men above 25 years of age who have paid at least 3 yen per annum in direct taxes and have resided in the same place for more than one year. Women cannot vote. The economic destitution of a considerable part of the Japanese population and active migration to the big industrial cities account for the fact that only 20.21 per cent of the population were voters in 1937. The corresponding figures for 1928, 1924, and 1912 were 19.97, 5.56, and 2.92 per cent respectively. The Japanese people have thus played only a very minor role in shaping national policy and lack basic democratic experience.

No popular revolution has ever been recorded in Japan's history, although many bloody feuds were fought by feudal clans. It remains to be seen how far the encouragement of occupational authorities will promote popular revolutions and to what extent political education can be developed among the masses.

The Diet's rights—although described at some length in the constitution—are well defined in the following Japanese comment on the constitution: "The Diet has not the right to make laws (Horitsu) but merely the right of consent." The drafting of laws is a prerogative of the government, although the Diet is allowed to make recommendations to the government as to the laws it promulgates. Every law is supposed to require the consent of the Diet, but sessions of parliament are usually convoked by the emperor only once a year for three months. Imperial decrees can be issued while the Diet is not in session and take legal effect immediately. The ordinary budget requires the Diet's approval,

but this does not give the Japanese Parliament any power comparable to that of the United States Congress. Expenditures for the Imperial House do not need this approval and the same is true of "expenses in the interest of normal exercise of governmental powers." Besides, the constitution provides for a basic budget for each branch of the government service which the Diet cannot curtail. Extraordinary expenditures can also be ordered by the government without consulting the Diet. As no executive or judicial powers are vested in the Diet, its authority is meager indeed. This might account for the poorly developed political party system in Japan and the lack of political leaders with a large popular following.

Other bodies of popular representation in Japan are 47 general councils with a total of 1,902 members (elected by 12,871,122 voters); 148 municipal councils with 5,412 members (4,613,045 voters); and 10,826 commercial councils with 149,427 members (8,883,886 voters). These councils have very limited powers and deal only with minor matters.

The ministers of state appointed by the emperor, according to the constitution, "have to give advice to the emperor and are responsible to him." A Privy Council, composed of all ministers, discusses important matters of state if the emperor asks for advice. Only the prime minister, the minister of war, and the minister of navy have direct access to the emperor. The two latter have to be high ranking officers of the army and navy respectively. This explains the overwhelming military influence in Japanese governments. If the militarists did not approve of a statesman appointed to select a new Cabinet, they declined to name any of their men for the posts of war and navy ministers and thus prevented the formation of a government. They have frequently refused to make such nominations for a Cabinet not headed by a prime minister from their own ranks. But even when a civilian became prime minister, he had to face the counterbalance of two military men in his contacts with the emperor and the militarist influence on every emperor therefore remained dominant.

The dissolution of the army and navy staff by Gen. Douglas MacArthur and the abolition of all Japanese armed forces is a most important step toward a political change in Japan. The road is now open to a government without militaristic ties and far greater civilian influence on the emperor.

The Japanese people are granted freedom of religion, of speech, of assembly, and of writing —within the limits of the law. These limits are narrowly drawn. Censorship in peace and war prevented freedom of the press until it was abolished by General MacArthur. Other civic rights were often voided by the government's proclamation of a state of siege, for which the Diet's consent was not necessary. The right to petition the government did not contribute much to the personal freedom of the Japanese subjects.

The agreement of the Allied governments to let Emperor Hirohito retain his throne was widely criticized at the time of the surrender. Experience showed that the imperial order of surrender was fully carried out without disturbances. The occupation met no resistance even from the most fanatical nationalists. It remains to be seen how far the basic Japanese political system can be revised without abolishing monarchic institutions.

These institutions are worshipped by the Shintoists—numbering about 20 millions and accepted as divine by the Buddhists, the religious majority of Japan. The Christian faith, to which idolatry of the emperor should be outrageous, has only 270,000 adherents in Japan. This small minority, tightly controlled by the government, has never raised any objections to the emperor's status.

On Oct. 6, 1945, John Carter Vincent, director of Far Eastern Affairs of the United States State Department, announced the decision of the occupation authorities to abolish Shintoism as a state religion, thus ending the identification of religion with the state. On December 22, General MacArthur's order carried out this decision. This move is likely to have far-reaching effects, but they will be eventual rather than immediate.

Social and Economic Structure of Japan.— Until the modernization of the country, Japan was a self-sufficient agrarian feudal state with some highly specialized trades and a population unchanged in number (30,000,000) for the previous 200 years. A small number of feudal lords owned large properties. Part of the nobility, too, was poor. The state is the largest landowner, with the imperial household next in wealth. Japanese industrialization did not grow organically out of smaller trades and was not rooted in popular wealth. The ruling groups established industries in order to make the nation powerful for future conquests. Japanese industry has always served armaments and transportation more than public consumption. A great aid to Japan's industrialization was the rapid growth of the population following the modernization of the country—and the difficulty of supporting a large number of people in an agricultural economy. Deterioration of living conditions in rural regions caused a steady influx of job-seekers to the cities and kept the industrial wage level extremely low. This accounts for the small buying power of the Japanese. Their industrialists have been interested primarily in export markets and raw material bases to be won by force of arms. Low Japanese wages facilitated dumping methods which other industrial countries tried to combat, thus giving Japanese industrialists another reason for hostility.

The backbone of Japan's economic structure is a small number of supercorporations, each of them controlling banking, industrial, commercial, and transportation companies. The greatest of these are Mitsubishi, Mitsui, Yasuda, and Sumimoto. Big banks, affiliated with the giant corporations, operated in Japan and in conquered territory to control economic life.

On October 1, in a surprise move, Allied occupational authorities seized 21 of the largest Japanese banks, among them the banks of Taiwan (Formosa) and Chosen (Korea), the Bank of Japan, the Hypothec Bank, and the Yokohama Specie Bank, and ousted their leading officials. These banks are supposed to be the custodians of concealed Japanese holdings and also of government and imperial funds. Their seizure, which does not affect the small deposits of private Japanese citizens, is a bold step toward the destruction of an economic structure infested with the germs of aggression and dumping. On November 6, complying with directives issued by General MacArthur, the Japanese government decreed the dissolution of Mitsui, Mitsubishi, Yasuda, and Sumimoto. These firms had extensive American connections.

The fundamental condition for an industrial reorganization of Japan on peaceful lines, with a healthy domestic market, is a complete reform of the wage system. According to Japanese official statistics, the wage earner in 1935 was paid an average of 1.87 yen per day (men—2.43; women—0.72). At the average rate of exchange for the year (100 yen equalled $28.50), these wages amount to 58, 69, and 20 cents respectively. The textile industry, employing mostly women, paid an average wage of a little less than 22 cents (U. S. currency) a day. Male miners earned less than 50 cents, women miners a little more than 20 cents daily. The best-paid metal workers made 90 cents a day. Most wage earners had to support families. In 1938, wages had risen by about 8 per cent compared with a general price increase of 35 per cent, which was, however, kept down to 13 per cent for rice, the staple Japanese food.

This wage level accounts for the fact that only 63 per cent of Japan's factories used mechanical power. Human power was so cheap that investments in machinery were not worth while. Except for armament plants, which are now to be dismantled, and artificial silk factories, the technical equipment of Japanese industry is generally inferior to that of other industrialized countries for the same reason.

Even these meager wages attracted destitute farmers. Migration to the cities began when the overpopulation of Japan made itself felt. Between 1920 and 1935, the number of Japanese living in villages of less than 500 inhabitants was reduced by half. It also declined in places of less than 5,000, but it rose from 6,753,598 to 17,518,069 in cities of more than 100,000 inhabitants. It can safely be presumed that, during the war, at least 25,000,000 Japanese lived in the empire's great cities, most of them as industrial workers. The total population of big cities heavily damaged by B–29 incendiaries was estimated at 20,696,977 in 1945.

Of the 64,450,005 persons statistically listed in metropolitan Japan in 1930, 29,619,640 were employed (19,030,237 of them men)—14,140,107 worked in agriculture; 504,624 in fishing; 251,220 were miners; 4,269,151 worked in manufacturing industries; 3,013,903 in commerce; 1,028,595 in transportation; 1,691,803 were in free professions; 84,203 in domestic service. Five and a half per cent of the employed were less than 14 years of age. The percentage of people engaged in agriculture has declined ever since. No exact recent figures are available. With almost 10,000,000 made homeless by the bombing of Japanese cities, industrial difficulties will increase even more. Only a few of the homeless, however, could return to the land.

Emigration will not solve the problem, even if foreign countries were willing to accept Japanese immigrants. In general the Japanese do not like to leave their country. In 1935, only 684,818 Japanese citizens lived abroad (173,420 of them in Brazil, 144,451 in Manchukuo, 110,040 in Hawaii, 98,357 in the United States, 88,325 in China, 21,524 in the Philippines, and 20,827 in Peru). In the same year, the number of emigrants from Japan totaled 10,813, of whom 5,745 went to Brazil and 1,802 to the Philippines. The Japanese in Manchukuo and China were mostly officials and railroad workers. Modern Japan, unlike such other densely populated Asiatic countries as China and India, has so far been spared catastrophic famines. But it is quite possible that, with mounting conversion difficulties, starvation might become a fatal regulator of the Japanese population figure.

Agriculture.—The total surface of metropolitan Japan is 38,245,000 hectares (1 hectare = 2.471 acres), but only 6,008,708 hectares were used for agricultural purposes in 1935 and this figure has not changed substantially since. It actually represents the maximum of arable land, as 84 per cent of the country is wooded, rugged, or barren. Of this farm land, 3,193,864 hectares are cultivated by landowners, 2,814,844 by tenants. More than half of the arable land (3,192,735 hectares) grew rice. The total crop value in 1935 amounted to 3,209,297,000 yen (roughly $900,000,000 at a rate of exchange of $28.50 for 100 yen), of which rice accounted for 2,071,889,000 yen. With almost half of the employed persons in Japan then working in agriculture, at least 30 million people—including dependents—shared this amount. This means that the rural population lived on an average of $30 annually per person. That fact accounts for the trend toward even the poorly paid jobs in industry and the constant migration from rural to urban areas. Better fertilizer and mechanical equipment cannot contribute much to an increase of Japan's agricultural production, as they cannot be used by rice growers. Besides, the destitution of Japanese farmers would never permit them to make substantial investments.

Statistics for years later than 1935 showed higher crop value figures, but this was exclusively due to higher prices. It can safely be assumed that 10,000,000 long tons of rice, 1,500,000 long tons of wheat, 800,000 long tons of barley, and 700,000 long tons of rye are about the maximum yield obtainable in Japan.

An undisclosed but considerable part of the rice crop is used for the production of the national beverage "sake," which has been an important export item. The Japanese trade balance of food includes beverages and tobacco in its figures, thus showing imports about equal to exports. The official trade balance did not cover imports of grains and cereals from Korea, Formosa, and Kwantung. With these territories severed from Japan and the export of sake and tobacco products (the latter of poor quality) curtailed, the agricultural deficit of present-day Japan can be estimated at about 35 per cent of the country's needs, based upon the prewar population figure, and substantially higher if the later population growth is taken into account. On December 10, Supreme Allied Headquarters ordered the Japanese government to take measures to end the system of land-tenure through sweeping rural reforms to be drafted before March 15, 1946.

Livestock.—In 1936, metropolitan Japan had 1,684,462 head of horned cattle, 1,448,481 horses, 277,884 goats, and 1,063,138 hogs. The cattle quota per capita in Japan is about 5 per cent of that in the United States. Little meat is consumed in Japan, due to national habits and the low standard of living. About 8,401,000 yen worth of beef was imported from China in 1936.

Fishing.—Fish plays an important role in Japan's food supply. The value of the catch in 1935 amounted to 181,801,507 yen. Only about 7 per cent of the fish used to be sold fresh; the rest was salted, smoked, and canned, partly for export. Lack of fuel and the cancellation of fishery concessions in Russian waters will reduce the catch hereafter.

Raw Materials.—Japan is extremely short of

mineral products. The mining production of metropolitan Japan in 1935 amounted to 70,914 long tons of copper, 34,191 long tons of zinc, 610,000 tons of iron, and 41,803,000 tons of low grade coal. The substantial silver production is of little use to industry. There is no oil.

Timber is abundant. The metropolitan area has 20,575,913 hectares of woods, of which 7,417,963 belong to the state and 1,243,194 to the crown; 16,200,984 hectares of wood in Korea are lost. Wood production in 1935 was valued at 113,968,000 yen. The large wood and paper industry in Japan can carry on despite the reduction of territory, although some special materials were imported from the United States. The same is true of the artificial silk industry and the natural silk industry. Cocoons are produced in Japan proper. The wool and cotton industries depend entirely on the importation of basic raw materials and so does the fabrication of rubber goods. Japan's heavy industry, mostly to be dismantled according to occupation policy, was always in dire need of foreign raw material imports. Scrap iron from the United States was especially important.

Foreign Trade.—In 1936, Japanese exports were valued at 2,692,970,000 yen, imports at 2,763,681,000. The increase to 3,576,000,000 and 3,972,400,000 yen respectively in 1940 was due partly to inflation and partly to war.

The efforts of the Japanese economic imperialists to develop Asia as their principal export market were successful. In 1936, 509.1 per mil (thousandths) of Japan's exports went to Asia, while only 383 per mil of the imports came from the continent. British India took 96.2 per mil of the exports and contributed 134.6 per mil to the imports. Equivalent figures for Manchukuo were 56 per mil and 74.4 per mil, Kwantung 128.9 and 13.1 per mil. The Soviet Union participated only to the extent of 8.5 and 2.5 per mil respectively.

According to official statistics, the United States took 220.7 per mil of Japan's exports and contributed 306.7 per mil of its imports in 1935. The official reports covered up the trade in essential war materials, so that the real figure of imports from the United States should be higher. Argentina absorbed 8.4 per mil of Japan's exports and accounted for 10.9 per mil of the imports. The figures for Australia were 25.5 per mil and 65.8 per mil respectively. Europe had a comparatively small share of Japanese trade: 114.3 per mil of the exports, about half of which went to Great Britain, and 119.5 per mil of the imports, about four tenths of which came from Germany.

The United States ranked first as a source of iron (50 per cent), cotton, oil (80 per cent), copper, automobiles (95 per cent), machines (40 per cent), paper and paper pulp, timber and planks (the latter was only a small fraction of Japanese domestic production). It ranked second in leather, phosphates, and gasoline (after the Netherlands Indies). The United States was the principal customer for Japanese camphor, menthol, tea, silk, vegetable oils, potteries, brushes, lamps, hats, and hat straw, and the second largest purchaser of Japanese canned goods.

Japanese imports consisted chiefly of raw materials, most of which were used for war production. A part of them, as well as imports of semifinished goods, were manufactured into finished products by underpaid Japanese labor to serve Japan's program of dumping exports. Japanese statistics list the value of raw material imports in 1936 at 1,737,716,000 yen and exports at 684,338,000. Corresponding figures for semifinished goods were 716,366,000 and 438,650,000. Exports of finished goods were valued at 1,563,439,000 yen, imports at only 294,358,000.

Industrial Production.—The number of plants and the value of their output in the most important branches of Japanese civilian industry in 1937 were as follows:

	No. of plants	Value in yen
Textile fabrics	19,041	1,617,575,000
Textile fibers (except silk)	534	1,467,762,000
Beverages	6,401	543,582,000
Silk	5,160	519,131,000
Fertilizer	2,494	379,883,000
Wood products	12,188	373,432,000
Paper	1,097	335,647,000
Artificial silk	46	332,358,000
Printing	3,544	258,519,000
Knitted goods	1,939	107,757,500
Vegetable oils	441	100,314,000
Glassware	969	96,375,000
Mill products	687	70,027,000

No figures are available for Japanese heavy industrial and armament production, but this output was certainly of greater aggregate value than total civilian production.

Manpower.—No unemployment was reported from Japan before the Second World War. The elimination of the country's war potential, however, will inevitably result in catastrophic industrial unemployment. The reconstruction of destroyed cities could absorb most of the idle, but it would be an undertaking of dubious value. The size of these cities was determined by the size of their industries. With war plants eliminated, fewer dwellings will be required.

Finances.—Late in 1941, the exchange rate was $23.50 for 100 yen. Since then, the yen has greatly depreciated, and a temporary rate of 15 yen per dollar was decreed by occupational authorities. The gold cover, as far as it had been discovered by Oct. 1, 1945, amounted to $125,000,000 for 8,600,000,000 yen banknotes in circulation in the homeland and an undisclosed but extremely large volume of paper currency in severed and formerly occupied territories. Far-reaching inflation is a serious threat despite counter measures inaugurated by the occupation authorities.

Japanese budgets, as published, hardly ever gave a clear picture of the nation's receipts and expenditures. For the fiscal year 1936–37, they were given as 2,372,099,000 and 2,282,176,000 yen respectively. The real expenses undoubtedly ran much higher. The budget of 1939–40 merely stated that receipts and expenditures were equal at 4,804,544,000 yen and listed extraordinary expenditures 35 per cent higher than ordinary ones. Since 1942, expenditures have risen sharply and continuously, reaching the 50 billion yen mark (according to reliable estimates) in 1944–45. Not more than 25 per cent of war expenditures were covered by taxation. War loans were issued. Inflation will reduce the value of the bonds and accelerate Japan's pauperization.

In peacetime, a substantial part of the public receipts (19 to 35 per cent) came from state property. State assets outside metropolitan Japan included most of the land in Formosa and a substantial part of Sakhalin. State domains were assessed at 8,593,047,000 yen in 1934, and at 11,935,390,000 yen in 1938, after the Japanese conquests in China. This amount equaled about 80 per cent of the total investments in Japanese corporations. State domains covered 14,765,976 hectares of land and a built-up urban area of 41,077,253 square meters (1 square meter =

1.196 square yards). The real estate holdings of the imperial house are assessed at 2,500,000,000 yen. Although state and imperial possessions are supposed to be used for reparations, a large part of them are located in severed or liberated territory and are therefore classed as loot. These assets will be restored to their former owners or taken over by the Allies without credit on the reparations bill. No exact figure for Japanese foreign holdings is yet available. A thorough checkup of the accounts of seized banks and corporations should produce this information.

Transportation.—Japanese railroads in the reduced empire totaled 14,984 miles in 1936, of which 10,576 were state-owned. Of the total, 12,511 miles were single-tracked. In 1936, railroad traffic amounted to 1,634,233,578 passenger rides and 68,598,177 long-ton miles of freight. The road network consists chiefly of 5,534 miles of well-kept state highways and 62,386 miles of rather poor secondary roads.

The Japanese relied heavily on water transportation. The real tonnage of Japan's merchant marine probably ran as high as 10 to 11 million tons at the outbreak of the Second World War. Official statistics, seeking to conceal Japan's naval potentialities, give the 1937 figure as 4,469,326 tons of steamships and 1,478,312 tons of sailing vessels.

No rolling stock statistics are published, but bombing and lack of adequate repairs and replacements have undoubtedly reduced it below the subsistence minimum. Lack of fuel also hampers road transport. The drastic reduction of Japan's merchant marine will add to transportation difficulties.

Education.—Metropolitan Japan had 48,215 schools with 15,242,333 pupils in 1937. Only 119 of the schools, with 74,933 students, were owned by the state; 44,691 schools with 14,328,062 pupils were listed as "public," i.e., municipal and institutional. The education level of Japan is high. Illiteracy in the metropolitan area is less than 1 per cent. Not much was done about education in the conquered territories.

Prosecution of War Criminals.—It was decided to use Japanese civilian authorities to arrest criminals pursuant to the requests of Allied authorities. The lists of war criminals are not yet completed. Many of the leaders chiefly responsible for Japanese aggression and the mistreatment of prisoners of war, such as former Prime Minister Hideiki Tojo, Gen. Masaharu Homma, Vice Admiral Godo, Shigoe Odate, Viscount Okochi, Lieut. Gen. Oshima, and Count Sakai have already been placed under arrest. Prince Konoye escaped arrest through suicide.

The first war-criminal trial started Oct. 8, 1945, against General Tomoyuki Yamashita, conqueror of Singapore and the Philippines in 1941. He was charged with "unlawfully disregarding and failing to discharge his duties as commander to control the operations of members of his command, permitting them to commit brutal atrocities and other high crimes." Sentenced to death, General Yamashita appealed. Field Marshal Count Juichi Terauchi, commander in chief of the Japanese armies in Burma and Malaya, was also arrested as a war criminal.

Evidence found after the occupation of Japan and the rescue of prisoners in formerly Japanese-controlled territory confirms previous reports of physical mistreatment and starvation of prisoners, murders, and constant violations of the Geneva Convention. American authorities and public opinion are unanimous in demanding severe punishment of the culprits. There is reason to believe that the prosecution of Japanese war criminals will be vigorously carried out.

The Occupation in Practice.—Energetic steps have already been taken to put the occupation program outlined into full effect, and by the end of the year, the program was actually carried out to a very large extent.

On September 26, Japanese Army and Navy authorities were ordered to turn over to Allied occupation authorities not only all arms and military equipment, but supplies of food, clothing, and motor transportation that can be used for civilian relief. Such supplies will be distributed through the Japanese home ministry under Allied control.

On September 24, general disassociation of the press from the government was ordered. On September 29, General MacArthur directed the Japanese government to remove all censorship restrictions from freedom of the press. He also ordered the dissolution of the Kempei (Japanese Secret Police) by October 10. The Kempei, counterpart of the German Gestapo, frequently imprisoned, detained, or otherwise oppressed persons suspected of liberal tendencies. General MacArthur's directive included the immediate liberation of persons imprisoned or interned for any reason connected with freedom of speech, thought, religion, or assembly. The supreme commander likewise ended Japanese governmental control of Christian religious institutions.

The Japanese Army and Navy General Staff were abolished by order of the Allied commander in chief on September 29. This leads to the abolition of the ministries of Army and Navy, thus paving the way for the establishment of a truly civilian government and the elimination of the predominant military influence upon the emperor. It also eliminates the foremost pillar of imperial power. Emperor Hirohito's unexpected call on Gen. Douglas MacArthur at the General's Headquarters was widely interpreted as a token of the emperor's desire to co-operate faithfully in fulfillment of the surrender terms.

Rumors of the emperor's intention to abdicate had not been confirmed at the time of writing. Such an abdication could take place in favor of the emperor's 12-year-old son and could lead to the establishment of a regency if the Allies wish to accept the provisions of Japan's constitution.

According to the blueprint of Allied policy, occupation authorities are not supposed to repair war damage nor to reform Japanese economy and find employment for Japanese labor. This responsibility falls upon the Japanese themselves. It will be extremely difficult for Japan to cope with the resultant problems.

Japanese public reaction to the foreign occupation of their country, the first in its history, is not yet conclusive. Accepting the emperor's orders with their customary obedience, they did not resort to violence. But there is no sign as yet of any trend toward democratic reforms, political progress, or an understanding of democratic ways of life. Neither the Japanese nor the occupation forces show much interest in fraternization.

General MacArthur has voiced his personal opinion that the occupation of Japan, although it will last for a considerable but indefinite period, may be carried out by comparatively small forces. It was emphasized that the possible reduction in the number of occupation troops will not relax their control over all of Japan's potentialities.

Events in 1945.—(See WORLD WAR SECOND—1945.) Little news came out of Japan early in 1945. It was evident that the people submissively and stubbornly carried on the task imposed upon them by their emperor and government. Allied bombings, although increasing in frequency and effectiveness, had not decisively weakened the war effort. Although all hope of final victory had vanished, the Japanese war-lords still clung to the belief that the Allies would finally become too exhausted to refuse a negotiated peace. Russia's hands were still tied by the nonaggression pact of 1941.

With the progress of the occupation of the Philippines, the conquest of Iwo Jima, and the sharp rise in the bombardment of the home islands early in March, the situation of Japan deteriorated rapidly. It was a tremendous moral blow when, on March 25, Russia declared her intention of discontinuing the nonaggression pact. The cancellation of Japanese fishing rights in Soviet waters and industrial concessions in northern Sakhalin followed. It became obvious that the Soviet Union would eventually enter the war against Japan to recover Russian losses sustained since 1904 and to obtain access to warm water ports in the Pacific.

On April 5, the Cabinet of Gen. Kuniaki Koiso was replaced by a new government headed by Kantaro Suzuki, with Gen. Rukuzo Sugiyama as War Minister and Admiral Mitsumasa Yonai as Navy Minister. The Suzuki Cabinet seemed prepared to accept "face saving" terms but not to surrender unconditionally.

As Japanese setbacks increased in all the widespread Pacific theaters of war, Japanese tactics became increasing desperate. (See WORLD WAR SECOND—1945.) The Japanese air force, short of fuel, reduced in numbers, and partly husbanded for defense against the invasion of the home islands, offered little opposition to United States raids. Fire and explosives rained from B–29s. Carrier plane attacks and other bomber missions from conquered Okinawa created frightful devastation. Japanese suicide planes—Kamikazes (See WORLD WAR SECOND—1945)—caused substantial losses to United States and British naval forces, but could neither stop nor delay the Allied advance.

Germany's capitulation on May 7 and 9 produced no immediate reaction by Japan. It was later learned that the Big Three had agreed at Yalta that Russia should join the Pacific war within three months after victory in Europe was won. Japanese attempts to secure Russian mediation between her and the Western Allies to obtain terms short of unconditional surrender evoked no response. On July 21, the Allies—not then including the Soviet Union—issued a declaration at Potsdam which warned Japan to give up soon or face total destruction. The Potsdam Declaration—leaving no doubt that by "giving up soon" unconditional surrender was meant—did not go into details and failed to mention the person of the emperor and his eventual status. Five days before the declaration, the test of the new atomic bomb had been carried out secretly and successfully in New Mexico.

There was no immediate Japanese reaction to the Potsdam Declaration. Damage to Japan by bombs and shells was already tremendous. About 170,000 persons were killed, 240,000 wounded, and more than 9,000,000 made homeless. The Japanese Navy had ceased to exist as an effective force. The potentialities of the Japanese air force were negligible and the position of the Japanese expeditionary forces in the distant theaters of operation had become critical. But a huge Japanese army—almost 2 millions strong—had assembled to defend the home islands against Allied invasion and had not seen action. The invasion of Japan—although its success was hardly in doubt—was expected to be extremely costly and protracted.

On August 5, the first atomic bomb, dropped on Hiroshima, shook the Japanese Empire to its foundations. The imperial Cabinet met. On August 8, Russia declared war on Japan and another atomic bomb hit Nagasaki. (See ATOMIC BOMB and WORLD WAR SECOND—1945.)

Through Swedish and Swiss intermediaries, Japan sued for a peace based upon the Potsdam Declaration, provided it did not involve the prerogatives and the person of the emperor. In their answer, the Allies made it known that the emperor might retain his throne for the time being with the understanding that his power would be limited to the execution of orders to be issued by the Allied command. This does not commit the Allies to retain the emperor as their agent. It is neither a guarantee for the continuance of Hirohito's rule nor for the maintenance of the monarchy as an institution. After some stalling, the Japanese accepted on August 14, 1945.

Gen. Douglas MacArthur, in charge of accepting the Japanese surrender, which took place formally on the United States battleship *Missouri* on Sept. 1, 1945 (September 2, Tokyo time), granted the Japanese request to let the far-flung imperial armies capitulate individually after receiving formal imperial orders, which took some time. The capitulations were carried out one by one: in the Philippines, in Burma, in China, in Manchukuo, in Singapore and Hongkong. The Japanese commanders and their troops gave evidence of remarkable discipline in accepting the emperor's orders. The Japanese main islands and the city of Tokyo were occupied by the United States forces without firing a shot, beginning on September 8. No cases of die-hard resistance were encountered.

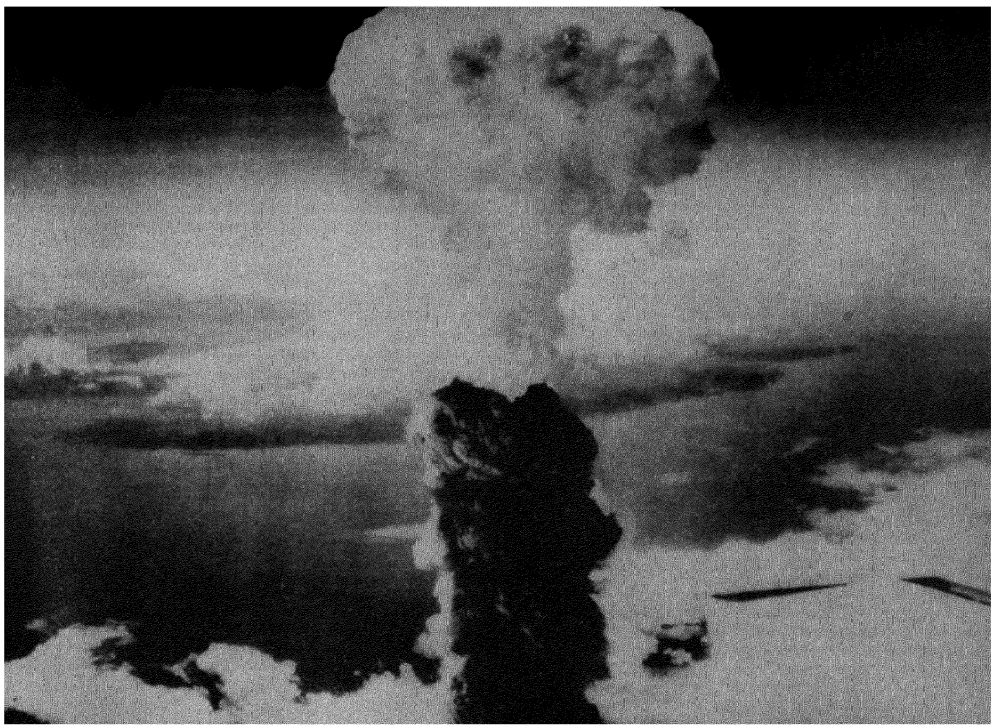
A Japanese "surrender Cabinet," headed by Prime Minister Prince Naruhiko Higashi-Kuni (among the candidates for prosecution as war criminals) was temporarily established. The power of this or any other Japanese government is extremely limited and the Allies can change or even abolish the government whenever they choose.

On October 5, Premier Higashi-Kuni handed his Cabinets' resignation to Emperor Hirohito. The ostensible reason was that the first phase of occupation and demobilization had been concluded. The true reason was rather General MacArthur's order that Home Minister Iwao Yamazaki, who had played a leading role in the suppression of personal liberties, must be removed from his post. The resignation was accepted immediately and Baron Kijuro Shidehara was charged with the formation of a new government. Baron Shidehara was ambassador to the United States in 1922 and Foreign Minister of Japan in 1924 and 1929. His reputation is that of a liberal by Japanese standards.

On October 15 General MacArthur announced that complete demobilization of both the Japanese Army and Navy had been effected.

After half a century of constantly growing and successful aggression, modern Japan has suffered its first defeat, destroying the fruits of

JAPAN



Smoke billows up over Nagasaki after bombing by atomic bomb.



U.S. Army Air Forces Photographs

A view of Hiroshima showing total destruction resulting from the dropping of the first atomic bomb, August 6, 1945.

all previous victories and reducing the country to military impotence and economic distress. (For information regarding the Japanese Navy, see NAVAL PROGRESS.)

ERWIN CH. LESSNER,
Major, Austrian Army; Author of Phantom Victory; Blitzkrieg and Bluff.

JAPANESE SOUTH SEA ISLANDS. By the Treaty of Versailles, Japan was given a mandate over the former German islands in the South Sea north of the Equator, in Micronesia. Together these Pacific islands—the Marianas, Carolines, and Marshalls—comprise an area of about 800 square miles, with a total population of approximately 110,000.

On Jan. 1, 1944, the *Army and Navy Journal* announced that it had been agreed at the Cairo and Teheran conferences, held in 1943, that the United States should be awarded the Japanese mandated islands, which became targets of intensified aerial bombardment early in 1944. The Marshalls were invaded by United States forces February 1. American forces landed in Saipan, in the Marianas, on June 15, and on September 15, Peleiu, on Palau Island, in the Carolinas, was invaded. Guam, (q.v.) in the Marianas, was invaded on July 21, and United States rule was re-established on the island on July 27, the first United States possession to be recovered since the beginning of the war. From Saipan, on November 24, was launched the first of a series of air raids on Tokyo designed, according to Gen. Henry H. Arnold, commander of the Army Air Forces, "to soften up the Japanese heart for the ultimate invasion."

Marianas (Ladrone) Islands.—A group of 14 islands (exclusive of Guam, ceded to the United States in 1898), purchased by Germany from Spain in 1899. They are situated east of the Philippines and approximately 1,200 miles south-southeast of Japan. The area is 246 square miles, and the population (1935) 44,025, including 39,728 Japanese. Saipan is the seat of government. On Feb. 13, 1945, Japanese garrisons on the islands of Pagan, Rota and Agrigan were estimated at 5,000. On June 28 Guam headquarters announced that six more of the group had been brought under control by Negro troops who landed and removed Japanese civilians. Enemy forces still remained on Pagan and Rota.

Caroline Islands.—This group comprises some 560 coral and volcanic islands situated north of New Guinea with a total area of about 390 square miles and a population (1935) of 48,048. The group is divided for administrative purposes into the Eastern Carolines, with Truk (pop. in 1935, 17,133, including 1,980 Japanese) and Ponapé (11,467, including 2,486 Japanese) as the centers of administration, and the Western Carolinas, with Yap (6,650, including 633 Japanese), and Palau (12,798, including 6,553 Japanese) as the centers of administration. Ponapé is the largest mandated island, having an area of 130 square miles. Truk, about 800 miles north of Rabaul, New Britain, was a key Japanese naval base. It was heavily bombed throughout 1944, but remained in Japanese hands at the close of the year when the Allied line of advance from Australia, New Guinea and Melanesia had bypassed it and swept as far north as Saipan in the Marianas. Fais, 60 miles east of Ulithi, was captured by American troops on Jan. 2, 1945. On February 13 a United States Navy spokesman estimated that of 83,000 Japanese troops in the Carolines, 50,000 garrisoned Truk. The remainder were divided as follows: Ponapé, 10,000; Yap, 10,000; Woleai, 6,000; Kusaie, 4,000; Puluwat, 3,000. The islands were under almost continuous bombardment by American ships during 1945. On June 14-15 a British naval task force made a powerful attack on Truk. The population of the Carolines is mainly of Malay origin, with some Chinese in addition to the Japanese. Copra and phosphates are the chief exports. Palau is an important source of bauxite. The United States normally has cable rights in Yap.

Marshall Islands.—Two chains of lagoon islands, of which many are uninhabited, known respectively as Ratak (18 atolls) and Ralik (14 atolls). The area is approximately 160 square miles, and the population (1935) 10,446, including 481 Japanese. The administrative center is Jaluit, 725 miles east of Ponapé in the Carolines. Coco-palm and sugarcane plantations are cultivated, and the principal export is copra. There are primary schools for Japanese and for natives. On Feb. 13, 1945, the number of the Japanese garrison was estimated at from 12,000 to 14,000. An American naval force rescued 494 natives from Jaluit Atoll on May 6, under Japanese fire. On June 30 natives of Majuro, Arne and Aur atolls petitioned the United States "to be our guardian and protector" when the war is over. See also under WORLD WAR, SECOND.

JARVIS. A small isolated island in the Pacific Ocean, about 1,300 miles south of the Hawaiian group, with an area of somewhat more than 1,000 acres. It was claimed independently for both the United States and Great Britain by ship commanders. The priority of the former was established in 1936, and in the same year the island was placed under the jurisdiction of the United States Department of the Interior. Apart from its limited guano deposits, Jarvis is important mainly on account of its strategic position on the supply line between San Francisco and New Zealand. It has a small air station.

JAUNDICE, Infectious. See MEDICINE, PROGRESS IN.

JAVA. See NETHERLANDS INDIES.

JELLIFFE, Smith Ely, American neurologist: b. New York, Oct. 27, 1866; d. Huletts Landing, Washington County, N.Y., Sept. 25, 1945. Dr. Smith Ely Jelliffe was a healer of mental and nervous diseases, in which he had a large practice, an editor of important medical journals, and the author of more than 400 papers on a wide variety of subjects, as well as several books. He also found time for many hospital activities and to appear as a mental expert in celebrated criminal trials.

Dr. Jelliffe received an M.D. degree from the College of Physicians and Surgeons, Columbia University, in 1889, and M.A. and Ph.D. degrees in 1900 and 1899 respectively. He received a B.A. degree from Brooklyn Polytechnic Institute in 1898, and studied in Vienna, Paris, Munich and Berlin. He served as visiting neurologist at New York City Hospital (1903–13); clinical professor of mental diseases at Fordham University (1907–12); and professor of pharmacognosy and technical microscopy (1897–1907) and instructor in materia medica and therapeutics (1903–07) at the College of Pharmacy at Columbia University. From 1911 to 1917 he was an adjunct professor of diseases of the mind and nervous system at the New York Post-Graduate Medical School and Hospital. He was editor of the *Medical News* (1900–05); asso-

ciate editor of the *New York Medical Journal* (1905–09); managing editor of the *Journal of Nervous and Mental Diseases* (1902–45) and of the *Psychoanalytic Review* (1913–45). He contributed several articles to the ENCYCLOPEDIA AMERICANA.

JERSEY. See CHANNEL ISLANDS.

JEWISH WAR VETERANS OF THE UNITED STATES. Second oldest veterans organization in the United States, having been founded in 1895, its membership July 30, 1945, numbered 120,000 (40,000 active and associate members; 80,000 in the armed services). During 1945 the organization devoted its energies to servicing veterans, their families and dependents; participation in war bond drives; organizing mass blood donations; presenting rest rooms, recreation rooms, books and other necessities to camps; making available certain appliances to disabled veterans in veterans' hospitals such as exercycles, wheelchairs, games, etc.; and to promoting patriotic rallies. Up to August 1, the annual encampment of the organization had been postponed because of the ban placed by the government on conventions. The organization publishes the *Jewish Veteran*, a monthly magazine of interest to veterans and their families, and the *J. W. V. Reporter*, a monthly newspaper devoted to the activities of the organization. Officers in 1945 included Archie H. Greenberg, national commander; Nathaniel Kaplan, national adjutant; and William Berman, executive secretary. National headquarters: 276 Fifth Avenue, New York City.

JEWISH WELFARE BOARD, National. See NATIONAL JEWISH WELFARE BOARD.

JIMENEZ OREAMUNO, Ricardo, Costa Rican lawyer, agriculturalist, and statesman: b. Cartago, Costa Rica, Feb. 6, 1859; d. San Jose, C.R., Jan. 4, 1945. One of Costa Rica's most distinguished citizens and an outstanding statesman, Señor Jiménez was the only president of that republic to serve three full terms: 1910–14; 1924–28; 1932–36. He began his diplomatic career as minister to Nicaragua and Salvador; and later filled the Cabinet posts of minister of foreign affairs, treasury and public instruction. He served as president of the Supreme Court of Justice in 1892, and later for three terms as deputy to the the Constitutional Congress. While serving his second term as president, Señor Jiménez made efforts to end the Nicaraguan revolution by mediation. When he was elected for a third term in 1932, one of the defeated candidates, Manuel Castro Queseda, started a rebellion, which was eventually settled with a peace parley in the United States legation. That same year, President Jiménez signed a decree denouncing the Central American peace pacts in accordance with Article 18 of the Treaty of 1923, which restricted recognition of revolutionary governments.

JOHNSON, Hiram Warren, United States senator from California: b. Sacramento, Calif., Sept. 2, 1866; d. Bethesda, Md., Aug. 6, 1945. Always a staunch individualist and tenacious defender of his convictions, Senator Johnson began his career as a liberal champion of reform and died the last of the great isolationists. Unshaken in his stand on foreign policy, he opposed America's entry into the League of Nations, the Four-Power Pact, the London Naval Treaty, and more recently fought against the World Court Plan, revision of the Neutrality Act, reciprocal trade agreements, peace-time selective service, and lend-lease.

Senator Johnson left the University of California during his junior year and in 1888 was admitted to the California bar and began practice in Sacramento with his father and brother. In 1902 he moved to San Francisco and soon built up a reputation as one of the best jury lawyers in the state. In 1906–07 his name came prominently before the public when he served on the staff of prosecuting attorneys in the graft cases involving leading city officials as well as almost all the public utilities in San Francisco. In 1908, he was selected to take the place of Francis J. Heney, after the latter had been shot down in court while prosecuting Abe Ruef for bribery, and secured Ruef's conviction. With a platform promising clean-reform government and a pledge to break the hold of the Southern Pacific Railroad on California politics, he was elected governor in 1911, and during his administration California took the lead in workmen's compensation, woman suffrage, a direct non-partisan primary, and prison reform. In 1912 he left the Republican Party to run for the vice presidency with Theodore Roosevelt on the Bull Moose ticket. During the 1916 presidential campaign, he was supposed to have caused the defeat of Charles Evans Hughes, who, when he came to California, neglected to visit Johnson, and "thus lost Johnson, California, and the election." Senator Johnson resigned as governor on March 15, 1917, to take his place in the Senate, to which he had been elected in the fall of 1916. He was re-elected to the Senate in 1922, 1928, 1934, and 1940. He lost his chance at the presidency in 1920 by refusing to become vice presidential candidate on the Republican ticket with Warren G. Harding, who died after serving little more than two years of his term. Senator Johnson bitterly opposed all of Hoover's policies and again broke from his party to support Franklin D. Roosevelt for the presidency in 1932. Later he took issue with Roosevelt on the World Court Plan, the Supreme Court reorganization, neutrality legislation, and the third term. Shortly before his death, Senator Johnson cast a lone vote in the Foreign Relations Committee, of which he was the ranking minority member, against reporting the new World Charter to the Senate without change.

JOHNSON, William Eugene, American prohibitionist: b. Coventry, N.Y., March 25, 1862; d. Binghamton, N.Y., Feb. 2, 1945. Nicknamed "Pussyfoot" because of his catlike policies in pursuing lawbreakers, Mr. Johnson crusaded for prohibition first in the United States and later all over the world. He was probably the most successful individual worker in this field, although he frankly admitted that he lied, bribed and drank to put over prohibition in America.

Educated at the University of Nebraska, Mr. Johnson worked on the staff of the Lincoln (Nebr.) *Daily News* from 1884 to 1886, and then became manager of the Nebraska News Bureau. It was during this period that he began to crusade on behalf of temperance. His exceptional zeal for this cause was recognized by the government, and in 1906 he was appointed special agent of the Department of the Interior to enforce laws in Indian Territory and Oklahoma. From 1908 to 1911, he was chief special officer of the United States Indian Service, and during that time he secured more than 4,400 convictions.

Not content with his work in the United States, Mr. Johnson set out to fight alcoholism in Europe, Asia, Africa, Australia, and the South Sea Islands. He accidentally lost his right eye when a stone was thrown at him during a prohibition meeting in London in 1919. He was a delegate to the 14th International Anti-Alcoholic Congress at Milan in 1913, and at Tartu, Estonia, in 1926. He was also a member of the International Temperance Committee of Fifty, Paris, 1919, and a director of the Scientific Temperance Federation of Boston. In addition, he was managing editor of 35 publications of the Anti-Saloon League (1912–16), and publicity manager and later director of the London office of the World League Against Alcoholism.

JOHNSTON, Eric Allen, film industry executive: b. Washington, D.C., Dec. 21, 1896. Mr. Johnston succeeded Will H. Hays as president of the Motion Picture Producers and Distributors of America, Inc., on Sept. 19, 1945, becoming titular head of a $2,000,000,000 industry. President of the United States Chamber of Commerce at the time of his appointment, he stated he would retain his leadership of that organization until expiration of his term of office in May 1946.

Mr. Johnston took his LL.B. degree at the University of Washington in 1917. In the First World War, he served as a captain in the United States Marine Corps, 1917–22; was honorably discharged as the result of a head injury received while he was serving as assistant naval attaché, Peking, China. In 1923, he and a friend purchased an electrical manufacturing company in Spokane, Wash., and 10 years later, expanded it into two separate organizations—Columbia Electrical and Manufacturing Company and Brown-Johnston Company, reportedly the largest manufacturers of electrical equipment in the northwest. He is still president of both these concerns. From 1931–32, he was president of the Spokane Chamber of Commerce; director of the United States Chamber of Commerce, 1934–41, and president since 1942. The youngest man ever to have headed the United States Chamber of Commerce, his candidacy for the post was sponsored by a group which stood for more co-operation between private industry, government, and labor. In June 1944, Mr. Johnston visited Russia; there he addressed Soviet trade and government officials in Moscow, toured Soviet factories and the Finnish war front, and discussed postwar trade problems with Foreign Trade Commissar Anastas Mikoyan. In October 1944, he received the Capt. Robert Dollar Award for his contributions to the promotion of foreign trade. On March 28, 1945, with William Green, AFL president, and Philip Murray, head of the CIO, he signed the labor-management charter of principles for postwar industrial relations. (The charter calls for mutual recognition of collective bargaining and of each other's rights and responsibilities; social security measures; an internal security organization; and the establishment of a national business-labor committee to help carry out these principles.) In July 1945, Mr. Johnston was named chairman of a subcommittee set up by the War Mobilization Advisory Board to study the guaranteed wage from the standpoint of the voluntary system.

JOHORE. See BRITISH MALAYA.

JOURNALISM. In a year crammed with front page news stories the leads went easily to the accounts of the cessation of fighting in Europe May 8, and the coming of peace in the Pacific area when Japan accepted the Potsdam declarations August 14. Extras poured forth with editors using their largest type and strongest banners.

The sudden death of President Franklin D. Roosevelt at 5:40 P.M. EWT on April 12, at Warm Springs, Georgia, brought extras from nearly every daily newspaper in the country. Only reporters from the three wire services were with him on his trip South.

Two premature peace stories touched off some extras and demonstrations. On April 28, the AP carried a story of German surrender from San Francisco based on statements by Senator Tom Connally. On August 13, the United Press flashed that Japan had surrendered. The flash was killed two minutes later but not before radio announcement started celebrations.

Jumping of the release date on the German surrender at Reims, France, by a full day, by Edward Kennedy of the Associated Press touched off a heated controversy on the ethics involved. Kennedy took full responsibility for not abiding by what he termed political censorship on the part of SHAEF (Supreme Headquarters Allied Expeditionary Forces). Filing privileges of the AP were revoked in Europe for a few hours. Kennedy was recalled to this country.

The epochal story of the atomic bombing of Japan August 5, announced the next day, with its tremendous possibilities both for war and for peace was given full play by all newspapers. Science editors were granted full rein in explaining the processes involved in the splitting of the atom and the unleashing of undreamed of power. Other outstanding stories were the entrance of Russia into the Pacific war on Japan August 8, the occupation of Japan by Gen. Douglas MacArthur's forces following the signing of the formal surrender document on the battleship *Missouri* in Tokyo Bay.

Voluntary wartime censorship of the press, directed by Byron Price, terminated August 15. Mr. Price paid tribute to editors who had made it a success. He termed the atomic bomb experimentation, much of it known to some editors, the best kept secret of the war.

Rationing of newsprint stopped Dec. 31, 1945, in its third year. But a world-wide shortage of the commodity gave no prospect of unrestricted use. Newspapers, despite record circulations, used 13.6 per cent less newsprint in 1944 than in the previous year. Many large dailies were forced to omit large amounts of advertising to conserve paper. Rationing of paper for magazines and books ceased August 15.

Circulations were at the peak for the fifth consecutive year. Figures in *Editor and Publisher International Yearbook* dated Jan. 31, 1945 show circulation of 18,059,252 for 338 morning papers, an increase of 5.7 per cent over the year before and circulation of 27,895,586 for the 1,406 evening papers, a gain of 2.1 per cent.

The government suit against the Associated Press on the ground that it violated provisions of the Sherman Antitrust Act was decided in favor of the government in a 5 to 3 decision by the United States Supreme Court June 18. The AP was ordered to rewrite its by-laws so that it could serve competitors of present members whose applications are otherwise acceptable. Enforcement of the verdict was left to the 3-man appointed federal court which originally tried the case. The AP on September 7 filed a petition for rehearing, contending that the court order harms the small newspapers by hindering,

rather than fostering, competition. On October 8, the Supreme Court, without comment, denied the petition for a rehearing.

Ernie Pyle, popular war correspondent and hero of the doughboy soldier, was killed by a Japanese sniper on the tiny isle of Ie near Okinawa on April 18. His column, filled with names and human interest, was syndicated in more than 400 papers. Pyle was caught in an ambush en route to the front.

The toll of American war correspondents and photographers rose to 38. The roll of those killed by enemy action included: Jack Frankish, United Press, from bombs in Belgium during the battle of the bulge in late December, and Joseph Morton, Associated Press reporter, shot to death by the Germans in Slovakia on Jan. 24, 1945. Only correspondent known to have met such a fate in this conflict, Morton had left Italy with a military mission which went into enemy territory to rescue American airmen.

Recipients of the Purple Heart for being wounded in line of duty included Keith Wheeler, Chicago *Times* correspondent, and Charles H. McMurty, Associated Press. Joseph McDonald, United Press, captured on Wake Island, was liberated from a Japanese prison camp in Manila.

A heart attack April 18 ended the career of Joseph V. Connolly, president of International News Service and King Features Syndicates. Other publishers of note who died included: Victor H. Hanson, Birmingham *News Age-Herald,* a founder of the Southern Newspaper Publishers Association, March 8; Maj. J. E. Crown, crusading editor of the *New Orleans States,* January 13 and Silas Bent, author and reporter, July 30.

Moses Koenigsberg, organizer of King Features Syndicate, named for himself in Anglicization of Koenig, died September 21, of a heart attack. He resigned as head of Hearst newspaper organizations in 1928. He championed a plan for a free press throughout the world which was presented to the League of Nations experts in 1927.

Robert T. Bellaire, first Allied correspondent killed in the Pacific area since the Japanese surrender, died September 30, in Japan of injuries received in a jeep accident. Bellaire represented the United Press in Tokyo before the war, was interned, and returned to the United States on the *Gripsholm* in the summer of 1944.

Ace reporter of the Associated Press, Kirke Simpson, who wrote the story on the burial of the Unknown Soldier at Arlington Cemetery in 1921, retired in July as did John L. Meyer, Chicago, manager and secretary of the Inland Daily Press Association.

Three representatives of the American Society of Newspaper Editors, Wilbur S. Forrest, assistant editor of the New York *Herald-Tribune,* Ralph E. McGill, editor of the Atlanta, Ga., *Constitution,* and Dean Carl Ackerman of Columbia University School of Journalism, completed in June a 40,000 mile global trip visiting 11 Allied and neutral countries and 22 major world capitals to spread the message of worldwide press freedom as a requisite of world peace. They reported that almost all governments were in favor of incorporating free press clauses in the peace treaty.

Carrier strikes deprived most of the millions of New York City and all of the St. Louisans of their newspapers for three weeks in midsummer. Papers continued to be printed in New York but could not be delivered. Lines blocks long formed daily at all newspaper offices except *PM,* which was not affected. In St. Louis the carriers struck for a lower contract price and the Printers' Union refused to cross picket lines. The strike ended when the publishers bought the routes and the carriers became employes and thus entitled to collective bargaining. The 1945 union laws of the International Typographical Union, reserving the right to the executive council to strike if blanket endorsement was not in the contract to union rules of employment, caused long strikes on the Jersey City *Journal* and the Bayonne (N.J.) *Times,* and shorter ones on the San Antonio *News* and the Uniontown (Pa.) *Standard.* The St. Louis C.I.O. Guild published six issues of the St. Louis *Daily News* during the strike.

Pulitzer Prize winners were: for distinguished service by a newspaper, the Detroit *Free Press* for an exposé of legislative graft in the state capital; editorial writing, George W. Potter, Providence (R.I.) *Journal-Bulletin;* war correspondence, Harold V. Boyle, Associated Press; best cartoonist, Sgt. Bill Mauldin, United Feature Syndicate; distinguished reporting on international affairs, Mark S. Watson, Baltimore *Sun;* telegraphic reporting on national affairs, John B. Reston, the New York *Times;* general reporting, Jack S. McDowell, San Francisco *Call-Bulletin.* For his memorable picture of the marines raising the flag on Mt. Suribachi, Iwo Jima, Joe Rosenthal, AP still-pool photographer, was cited.

Steady and continuous support was given to war loan campaigns and salvage drives of all types. The Office of War Information, headed by Elmer Davis, formally closed September 15. *Yank,* colorful news-magazine of the armed services, ceased publication Dec. 28, 1945.

While total advertising for the first eight months was down .9 per cent from the corresponding time in 1944, continued increases since V-E Day, especially in the retail field, had overcome earlier losses. ANPA (American Newspaper Publishers' Association) membership reached an all-time high of 740.

The American Society of Journalism School Administrators was organized with Dr. P. I. Reed, West Virginia University journalism director, as president. A plan for the accreditation of the United States journalism-training institutions by an authority representing the press and the American Association of Schools of Journalism was announced early in May.

Heads of leading organizations in journalism are: American Newspaper Publishers' Association, William G. Chandler, Scripps-Howard papers; Inland Daily Press Association, Don Anderson, Madison, (Wis.) *State Journal;* American Association of Schools and Departments of Journalism, Max R. Grossman, Boston University; Sigma Delta Chi, Willard R. Smith, Chicago, Ill.; and National Editorial Association, C. L. Ryder.

EUGENE W. SHARP,
School of Journalism, University of Missouri.

JOYCE, William, war criminal: b. Brooklyn, N.Y., April 24, 1906. William Joyce, alias Lord Haw Haw, broadcast throughout the Second World War for German Propaganda Minister Joseph Goebbels, his object, the undermining of British morale. Far from achieving his purpose, he was highly valued by his British and American radio audiences as an entertainer. Joyce was educated in Ireland and at the University of London. In 1933, he was a member of Sir Oswald Mosley's British Fascist organization; in

1937, he broke with Mosley, and established his own National Socialist League. He went to Germany on Aug. 25, 1939. On May 29, 1945, he was captured by British soldiers at Lüneburg, Germany, and on June 18, went before London's chief metropolitan magistrate, charged with high treason. Despite the fact that he proved his American citizenship in an effort to escape the penalties of British law, Joyce was sentenced on Sept. 19, 1945, to be hanged for treason. (He was executed Jan. 3, 1946.) He was convicted on the charge of "adhering to the King's enemies by broadcasting propaganda between Sept. 18, 1939, and July 2, 1940, while owing allegiance to the King." The court ruled that he was subject to British justice because, in times past, he had claimed the privileges and protection of a British passport.

K

KAISER, Georg, German playwright: b. Magdeburg, Germany, Nov. 25, 1878; d. Ascona, Switzerland, June 5, 1945. A dramatist of social vision who employed an advanced modern technique that secured him recognition as one of the leaders of the expressionist school, Kaiser wrote plays that were almost uniformly successful, both artistically and commercially. His first drama, a satiric comedy, *Rektor Kleist,* was written when he was 25 years old, but his plays did not reach the stage for another 10 years. His best known works include *Die Jüdische Witwe* (1911); *König Hahnrei* (1913); the pseudo-historical drama, *Die Bürger von Calais* (1914); *Von Morgens bis Mitternachts* (1916), a moving drama of the futility of modern civilization, which was produced by the Theater Guild in New York in 1922 under the title *From Morn to Midnight; Die Sorina* (1917); *Die Versuchung* (1917); *Gas* (in 2 parts, 1918; 1920), which bitterly denounced the industrial system and pleaded for man's emancipation from the tyranny of the machine; *Die Koralle* (1918); *Der Brand im Opernhaus* (1918); *Hölle, Weg, Erde* (1919); *Die Flucht nach Venedig* (1923); *Nebeneinander* (1923); *Kolportage* (1924); *Zweimal Oliver* (1926); *Gats* (1928); *Zwei Krawatten* (1929); and *Mississippi* (1931).

KALISH, Max, American sculptor: b. Poland, March 1, 1891; d. New York City, March 18, 1945. Kalish first won fame with his statues of American working men; more recently he had given much of his time to making statuette portraits and small bronze figures. Among his subjects have been Lily Pons, John Charles Thomas, Jonas Lie, Joseph P. Day, Dr. John F. Erdmann, and others. His statuettes of "Fifty Great Men of 1944," including that of the late President Roosevelt, were on exhibition at the Smithsonian Institution in Washington at the time of his death.

Brought to the United States in childhood, Kalish was educated in the Cleveland public schools. He studied sculpture at the Cleveland School of Art (1906–10); the National Academy of Design in New York (1910–12); and at the Acadamie Colorossi and the École des Beaux-Arts, Paris, (1912–14). He held the position of associate sculptor at the Panama-Pacific International Exposition in San Francisco (1913–15), and lectured at Western Reserve University from 1929 to 1932.

Among Kalish's important works are a bronze figure of Christ (1926), and a heroic figure of Lincoln which he made for the city of Cleveland in 1927. His works are included in the National Gallery of Arts, the Cleveland Museum of Art, the Newark Museum of Art, and other collections. Kalish was an associate National Academician and a member of the National Sculpture Society.

KAMEROON. See CAMEROONS; CAMEROUN.

KAMIKAZE. Japanese suicide plane, loaded with high explosives, designed to destroy floating targets by crash-diving into them. "Kamikaze" in Japanese means "divine wind," as the typhoon was called which allegedly destroyed the Mongolian invasion fleet of Kublai Khan off Japan. According to the not always reliable reports of Marco Polo, who presented the Mongolian version of the story, a Mongol fleet of between 4,000 and 6,000 barges, manned by about 35 soldiers each, set out to subdue Japan in 1281, following the conquest of China and Korea. It was dispersed and mostly destroyed by the storm before reaching the Japanese coast. According to the Japanese tradition, no more reliable than Marco Polo, Kublai Khan's amphibious forces tried to invade Japan twice, in 1274 and 1281, but were repulsed at the beaches by Japanese warriors led by Shikken (Regent) Höjö Tokimune. Their fleets were supposed to have been destroyed by raging typhoons on their inglorious homeward voyage. The first Japanese airplane to fly around the world, on a trip sponsored by the Tokyo newspaper *Asahi Shimbun,* was christened *Kamikaze.* Its exploits aroused a chauvinistic frenzy in Japan and made the name a symbol of a flier's heroism.

There were two widely different kinds of Kamikaze. The older type used comparatively early in the Pacific theater of the Second World War, was either a medium bomber or a fighter plane, stripped of guns, armor, et cetera, and loaded to the maneuverable limit with explosives to be ignited by bomb fuses when hitting the target. The pilot was not locked into the cockpit, but he had no parachute, and was certain to be killed by the explosion. He could hardly attempt to save his life by returning without having crash-dived, for even a normal landing would almost certainly lead to an explosion. The first type of plane to be converted into a Kamikaze was the Mitsubishi 0-1 bomber, nicknamed Betty 22 by the Americans; the second, a low-winged modern fighter plane, referred to as the Frank I by American airmen. The size of the planes and their lack of armor made them highly vulnerable to antiaircraft fire. This fact and the relatively high cost of production led to the development of another type of Kamikaze used for the first time in the battle for Okinawa. Americans referred to it as the "Baka" bomb—Baka in Japanese mean-

ing "stupid." The Japanese called it "Jinray" (Pearl of Thunder).

The Jinray was a maneuverable and manned version of the German V-1 flying bomb. It was carried by a Mitsubishi bomber of the Betty 22 (0-1) type, suspended under the latter's fuselage. When in sight of the target, the Jinray was released as the bomber turned away to escape AA (ack-ack) fire. After an initial glide, the pilot switched on rockets that gave the missile a speed of about 500 miles an hour. Although the pilot was not locked into this type of Kamikaze either, he had no parachute and the bomb had no landing gear. Maneuvering to avoid anti-aircraft fire, the pilot, in his last dive, aimed at his target through a sight resembling that of an AA machine gun. He was supposed to select only big ships as targets, aircraft carriers if possible, and to attempt to crash at the most vulnerable part of the vessel. If the pilot missed the target, he was doomed to dive into the sea, as the Jinray could not pull out of a power dive.

The Jinray had a fuselage length of 19 feet 10 inches and a wingspan of 16 feet 5 inches. The fuselage was of metal construction, with wings, rudders, and elevators of plywood. The warhead contained 2,645 pounds of tri-nitro-anisol, a very powerful explosive, ignited by a fuse in the nose of the bomb. The sight, on the rear of the warhead, faced a cockpit protected by 5/16 of an inch of armor. Behind the cockpit were a small oxygen tank and three rocket motors equipped with three rockets each. Rudder and elevators were the same as on a normal airplane. The range of the Jinray was short and it was bound to crash dive soon after its release. The power of penetration of the flying bomb, speeding at 500 miles an hour, came close to that of the heaviest naval artillery shell. Despite its armor, however, the Jinray proved highly vulnerable to AA fire.

A special corps of Kamikaze fliers was given thorough training in Japan. At times the Japanese boasted of scores of thousands of young men eager to join the suicide squads. Exact figures remained undisclosed. A large number of Kamikaze fliers were supposed to have been husbanded for the defense of the Japanese home islands against the final Allied invasion.

Despite considerable damage done to the Allied fleet off Okinawa and some losses suffered in other zones through Kamikaze fliers, the effect of the weapon did not come up to exaggerated Japanese expectations. Relatively few capital ships were hit by the Kamikazes and most of them survived and could be repaired. The moral effect desired by the Japanese did not materialize either, since the Allies were not intimidated by suicidal tactics. The Kamikaze can hardly be considered a practical "weapon of the future." See also under WORLD WAR, SECOND—*Conquest of Okinawa.*

ERWIN CH. LESSNER,
Author of Phantom Victory; Blitzkrieg and Bluff.

KANSAS. West North Central state, United States; admitted to the Union Jan. 29, 1861. Population (1940): rural, 1,047,087; urban, 753,941; total, 1,801,028. Land area, 82,113 square miles, divided into 105 counties. Chief cities, with 1940 populations: Kansas City, 121,458; Wichita, 114,966; Topeka, the capital, 67,833; Hutchinson, 30,013; Salina, 21,073; Leavenworth, 19,220.

Chief State Officers, 1945.—Governor, Andrew F. Schoeppel; lieutenant governor, Jess C. Denious; secretary of state, Frank J. Ryan; treasurer, Elmer T. Beck; auditor, George Robb; attorney general, A. B. Mitchell.

Judiciary.—Chief justice of the state supreme court, W. W. Harvey; associate justices, William A. Smith, Walter G. Thiele, Hugo T. Wedell, Homer Hock, Jay S. Parker, Allan B. Burch.

Legislature.—The state legislature (Senate, 40 members; House of Representatives, 125) convenes biennially in odd years on the second Tuesday in January.

Education.—Public elementary schools (at last report), 6,414; teachers, 10,149; pupils, 251,929. Public junior high schools, 98; teachers, 981; public senior high schools, 696; teachers, 4,485; total number of junior and senior high school students, 99,441. Teacher training schools, 3; teachers, 300; students, 2,240. The University of Kansas, Lawrence, and Kansas State College, Manhattan, receive financial aid from the state. Education is compulsory for all children between the ages of 6 and 16, inclusive.

Finances.—Following is a statement of Kansas' finances for the fiscal year 1944–45, supplied by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$ 84,288,694.81
Receipts, 1944–45	90,731,887.78
Total	$175,020,582.59
Disbursements, 1944–45	75,821,352.15
Balance, beginning of fiscal year 1945–46	$ 99,199,230.44

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Production Preliminary 1945
Corn (1,000 bu.)	45,090	114,793	69,828
Oats (1,000 bu.)	37,770	28,098	21,090
Wheat (1,000 bu.)	133,791	191,669	214,679
Barley (1,000 bu.)	10,294	14,348	6,948
Rye (1,000 bu.)	809	987	880
Sorghums for grain (1,000 bu.)	11,406	49,468	15,600
Flaxseed (1,000 bu.)	855	452	522
Hay:			
Alfalfa (1,000 tons)	1,000	1,661	1,562
Tame (1,000 tons)	1,274	1,955	1,809
Wild (1,000 tons)	600	780	742
Soybeans for beans (1,000 bu.)	605	3,315	2,612
Sweet potatoes (1,000 bu.)	327	406	418
Tobacco (1,000 lb.)	277	300	270
Potatoes (1,000 bu.)	2,279	1,144	1,580
Apples (1,000 bu.)	735	279	279
Peaches (1,000 bu.)	87	15	63
Pears (1,000 bu.)	131	63	112
Grapes (tons)	2,840	3,300	4,300

KARAFUTO. See SAKHALIN.

KARELO-FINNISH SOVIET SOCIALIST REPUBLIC. See UNION OF SOVIET SOCIALIST REPUBLICS.

KAZAK SOVIET SOCIALIST REPUBLIC. See UNION OF SOVIET SOCIALIST REPUBLICS.

KEANE, Doris, American actress: b. Michigan, Dec. 12, 1881; d. New York City, Nov. 25, 1945. Miss Keane scored one of the greatest of modern theatrical triumphs in New York and London as Margherita Cavallini in Edward Sheldon's *Romance,* which opened at the Maxine Elliott Theater, New York City, on Feb. 10, 1913. Privately educated in Chicago, New York, and Paris, Miss Keane then studied at the American Academy of Dramatic Art in New York. She made her debut on the stage as Rose in *Whitewashing Julia* at the Garrick Theater, New York, on Dec. 2, 1903. In 1904 she supported John Drew in *Delancy* and three years later she made

her first London appearance in *The Hypocrites*. Save for two brief absences because of illness, Miss Keane played 1,049 consecutive performances in *Romance* in London, where the play opened in 1915. After a time, Basil Sydney, an English actor, took the leading male role in the play and toward the close of the London run, in 1918, they were married. This marriage ended in divorce in 1925. Miss Keane was seen in a revival of *Romance* at the Playhouse, New York, in 1921, and at the Playhouse, London, in 1926. She toured England the next year and also appeared in a silent motion picture version of the play. Although she later starred in *Roxana* (1918), *Romeo and Juliet* (1919), *The Czarina* (1922), and *Starlight* (1925), she never had another success like *Romance*. Her last appearance was in 1929 at the Belasco Theater, Los Angeles, in *The Pirate*.

KEDAH. See BRITISH MALAYA.

KEELING ISLANDS. See BRITISH MALAYA.

KELANTAN. See BRITISH MALAYA.

KEMMERER, Edwin Walter, American economist: b. Scranton, Pa., June 29, 1875; d. Princeton, N.J., Dec. 16, 1945. One of the world's greatest exponents of monetary theory and a strong defender of the gold standard, Dr. Kemmerer had been called upon by 14 governments for advice in reorganizing their monetary systems. Starting in 1903 with a visit to the Philippine Islands, he subsequently served as financial adviser to the Straits Settlements, Egypt, Mexico (1917), Guatemala (1919), Colombia (1923; 1930), the Union of South Africa (1924–25), Chile (1925), Poland (1926), Ecuador (1926–27), Bolivia (1927), China (1929), Peru (1931), and Turkey (1934).

Working his way through Wesleyan University, he was graduated in 1899 and won a fellowship for graduate study in economics and finance at Cornell University, where he took his doctorate of philosophy in 1903. He was instructor in economics and history at Purdue University (1901–03); assistant professor of political economy at Cornell University (1906–09); and a professor at Cornell from 1909 to 1912. In 1912 he went to Princeton as professor of economics and finance, a post he held until 1928 when he was elevated to the Walker chair in international finance and to the post of director of the international finance section of the university. He retired in June 1943. Dr. Kemmerer served as a currency and banking expert to the Dawes Committee when it drew up the so-called Dawes plan for handling German reparation payments in 1925. He had been managing editor of the *Economic Bulletin* (1907–10); president of the American Economic Association (1926); and president of the Economists' National Committee on Monetary Policy (since 1937). Dr. Kemmerer was the author of many books, the best known being *The ABC of the Federal Reserve System* (1918).

KENNEY, George Churchill, United States Army Air Force officer: b. Yarmouth, Nova Scotia, Aug. 6, 1889. From June 1944, General Kenney commanded the Far East Air Force, under the overall command of Gen. Douglas MacArthur. Kenney's air force lent support to MacArthur's invasion of Leyte in the Philippines on Oct. 20, 1944, and the landings on Luzon in early January 1945.

General Kenney was sent to the Pacific theater in July 1942, when he replaced Gen. George H. Brett as MacArthur's air commander. An able and ingenious leader, his first achievement in the Pacific was the sending of an airborne United States regiment to the relief of the Allies in New Guinea, making possible the Australian drive across the Owen Stanley Mountains. He devised and perfected several unusual and effective methods of aerial warfare, among them the deadly art of skip-bombing, which in March 1943 cost the Japanese 10 warships and 12 troop transports in the battle of the Bismarck Sea. In September of the previous year, he directed the employment for the first time of a co-ordinated aerial attack on an enemy-occupied airfield near Buna, New Guinea, using instantaneous fuze parachute bombs dropped from extremely low altitudes.

General Kenney became an army flier in June 1917 when he enlisted in the aviation section of the Signal Corps Reserve. He was commissioned first lieutenant November 1917, and sailed for France where he began advanced flight training at the 3d Aviation Instruction Center at Issoudun. Thereafter, he served first with the French Eighth Army; later with the American First and Third. He was awarded the Distinguished Service Cross for heroism in action near Jametz, France, on Oct. 9, 1918, and was also awarded the Silver Star for bravery. In June 1926, he graduated from the Air Corps Tactical School; in June 1927, from the Command and General Staff School; and from the Army War College in June 1933. From February to April 1939, General Kenney was air corps observer with the navy during fleet and marine exercises in the Caribbean; during this period, he made a complete survey of possible airdrome locations in Puerto Rico and the Virgin Islands, selecting sites now being used as military airbases. From February to May 1940, he was assistant attaché for air in Paris, observing tactical operations on the Franco-German front and studying technical developments made in military aircraft and equipment by both sides. As a result of his studies, a number of improvements were made in American military aircraft fully a year prior to America's entry into the Second World War.

General Kenney holds the Distinguished Flying Cross, the oak leaf cluster to his Distinguished Service Cross, the Purple Heart, and the Distinguished Service Medal. He is an honorary knight commander of the military division of the Order of the British Empire. He was promoted full general (temporary) in March 1945.

KENTUCKY. East South Central state, United States; admitted to the Union June 1, 1792. Population (1940): rural, 1,996,300; urban, 849,327; total 2,845,627. Land area, 40,109 square miles, divided into 120 counties. Chief cities, with 1940 populations: Louisville, 319,077; Covington, 62,-018; Lexington, 49,304; Paducah, 33,765; Newport, 30,631; Owensboro, 30,245; Ashland, 29,-537; Bowling Green, 14,585; Frankfort, the capital, 11,492.

Chief State Officers, 1945.—Governor, Simeon S. Willis; lieutenant governor, Kenneth H. Tuggle; secretary of state, Charles K. O'Connell; treasurer, Thomas W. Vinson; commissioner of finance, Clarence Miller; attorney general, Eldon S. Dummitt.

Judiciary.—Chief justice of Kentucky's Court of Appeals, Henry Johnson Tilford; associate judges, Porter Sims, William H. Rees, James W. Cam-

mack, Jr., William Augustus Thomas, Clyde B. Latimer, E. Poe Harris.

Legislature.—The state's General Assembly (Senate, 38 members; House of Representatives, 100) convenes biennially in even years on the first Tuesday after the first Monday in January.

Education.—Public elementary schools (1944–45), 5,785; teachers, 12,813; pupils, 451,742; average yearly salary of elementary school teachers, $984. Public junior and senior high schools, 907; teachers, 4,897; students, 79,343; average yearly salary of junior and senior high school teachers, $1,456. Education in Kentucky is compulsory for children between the ages of 7 and 16, inclusive. Total state appropriation for common school education (1944–45), $15,000,000; appropriation by cities and counties (1944–45), $20,000,000. Superintendent of public instruction, John Fred Williams.

Finances.—The following figures concerning state finances for the fiscal year 1942–43 are the latest available:

Balance in treasury, beginning of fiscal year 1942–43	$ 9,350,650.59
Receipts, all sources, 1942–43	32,767,943.66
Total	$42,118,594.25
Disbursements, 1942–43	28,615,693.68
Balance, beginning of fiscal year 1943–44	$13,502,900.57

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Production Preliminary 1945
Corn (1,000 bu.)	66,321	67,080	77,130
Oats (1,000 bu.)	1,434	1,538	1,909
Wheat (1,000 bu.)	5,975	7,902	5,872
Barley (1,000 bu.)	1,250	1,932	1,462
Rye (1,000 bu.)	183	616	858
Hay:			
Alfalfa (1,000 tons)	297	346	499
Clover and timothy (1,000 tons)	317	313	547
Tame (1,000 tons)	1,688	1,601	2,336
Soybeans for beans (1,000 bu.)	375	780	975
Sweet potatoes (1,000 bu.)	1,503	1,440	1,440
Tobacco (1,000 lb.)	296,820	477,020	445,379
Potatoes (1,000 bu.)	3,605	2,494	4,257
Apples (1,000 bu.)	285	185	262
Peaches (1,000 bu.)	619	878	1,273
Pears (1,000 bu.)	223	135	256
Grapes (tons)	2,030	1,900	1,000

KENYA COLONY AND PROTECTORATE. See BRITISH EAST AFRICA.

KERN, Jerome David, American composer: b. New York, Jan. 27, 1885; d. there, Nov. 11, 1945. Dean of America's show music composers, Jerome Kern was rated by critics with Victor Herbert in the field of musical theater, and his *Show Boat* (1927) was often described as the best operetta written by an American. During a period of 40 years he was credited with a total of 104 stage and screen vehicles containing his melodies. Fifteen of these were reported to have passed the 2,000,000 mark in record sales. Among his best known songs are *Ol' Man River, Look for the Silver Lining, Smoke Gets in Your Eyes, Why Do I Love You?, They Didn't Believe Me, The Way You Look Tonight,* and *The Last Time I Saw Paris.*

Mr. Kern's first association with music came through his mother, who taught him to play the piano. After graduating from Newark (New Jersey) High School, where he regularly played the organ at assembly and directed a students' musical show, Kern took courses at the New York College of Music with Alexander Lambert and Paolo Gallico. He had additional lessons in theory and harmony with Dr. Austin Pierce and Albert von Doenhoff, and studied privately with tutors in Germany in 1904–05. His first New York job was with the Lyceum Music Publishing Company, as a pianist and song-plugger at $7 a week. Later he took a job with T. B. Harms and Company, music publishers, and eventually became vice president of the firm. He began as a composer in England in 1903, but it was not until seven years later that *Mr. Wix of Wickham,* his first musical show, was given its première in New York. In 1911 he did music for *The Red Petticoat,* and later wrote musical scores for *Very Good Eddie* (1915); *Ziegfeld Follies* (1916); *Have a Heart* (1917); *Oh Boy* (1917); *Rock-a-Bye Baby* (1918); *Sally* (1920); *Stepping Stones* (1923); *Sunny* (1925); and numerous other shows. In 1927 he collaborated with Oscar Hammerstein, 2d on an operetta derived from Edna Ferber's novel, *Show Boat.* Later musical shows for which he composed songs were *Sweet Adeline* (1929), *The Cat and the Fiddle* (1931), *Music in the Air* (1932), *Roberta* (1933), and *Very Warm for May* (1939). In 1930 he went to Hollywood where he wrote the music for the films, *Men of the Sky* (1930); *I Dream Too Much* (1935); *Swing Time* (1936); *When You're in Love* (1937); *The Joy of Living* (1938); *One Night in the Tropics* (1940); *You Were Never Lovelier* (1942); and *Can't Help Singing* (1945). In 1941 Artur Rodzinski conducted the Cleveland Symphony Orchestra in the world première of Kern's *Show Boat: A Scenario for Orchestra,* and the next year Andre Kostelanetz led the Cincinnati Symphony in the first performance of his *Mark Twain: A Portrait for Orchestra.*

KESSELRING, Albert, German Army officer: b. 1887. Field Marshal Kesselring was the last supreme commander of German armies in the west. In April 1945, one month after he replaced Field Marshal Karl von Rundstedt in that post, his command was divided, and he directed operations south of the Leipzig area. On May 9, announcement was made of his capture by the American Seventh Army. Kesselring had previously commanded Nazi forces in Italy, and is generally credited with the extraordinary stand made there in 1944 and the early weeks of 1945. Son of a government inspector of schools, he began his military career as a pilot in the First World War. His rise to prominence was speeded materially by his friendship with Hermann Göring, and by 1936, he was first chief of the Luftwaffe's general staff. He later relinquished this post in protest against opposition to his plans for air operations, and it was not until February 1939 that he returned to favor as commander of Air Fleet I. In September 1939, he directed air force operations between Danzig and Brest-Litovsk during the Polish campaign, and in May 1940, sent German bombers over the Netherlands, Belgium, and France as commander of Air Fleet II in the northern sector of the western front. He was promoted general field marshal in June, and thereafter, took part in the Battle of Britain. His presence as Nazi commander in Italy in 1944 was revealed in Italian dispatches in mid-August, reporting he had been "grievously wounded by his own officers," and again in November Bern reports stated he had suffered serious injuries.

KINDERGARTEN ASSOCIATION, National. This association, in the year ended July 30, 1945, secured the establishment of 67 new kindergartens

under properly qualified teachers; continued its attempts to arouse interest among the leaders of many state organizations to obtain enactment of better kindergarten laws with the result that in several instances improved legislation resulted; and assisted parents in solving child behavior problems through its home education articles, which are being sent to 922 publications that agreed to print them. The articles are used also by 773 home demonstration agents, and have been requested by 32 countries. They are sent free of charge. The association is supported by voluntary contributions and bequests. There are four types of membership: honorary ($1,000); life ($100); sustaining ($25); and just plain memberships ($10). Publications include weekly home education articles, and various leaflets. Officers as of July 30, 1945, included Maj. Bradley Martin, president; Eversley Childs, Jr., treasurer; and Miss Bessie Locke, executive secretary. Miss Florence Jane Owens is editor. Headquarters: 8 West 40th Street, New York 18, N.Y.

KING, Ernest Joseph, United States naval officer: b. Lorain, Ohio, Nov. 23, 1878. Admiral King was named commander in chief of the United States Fleet in December 1941, when the Pearl Harbor attack made it imperative to consolidate all United States naval forces under one commander, and in March 1942, he assumed additional duties as chief of naval operations. He played a prominent role in military and naval conferences on American-British war strategy in 1943 and 1944. His planning is credited with having reduced Japanese naval power to a negligible factor in the Pacific war in the latter year. He attended the Potsdam Conference, July 17–Aug. 2, 1945. In October, the executive orders establishing the office of commander in chief, United States Fleet, (COMINCH) and combining it with the office of chief of naval operations were revoked by President Truman. Admiral King, however, continued to serve as chief of naval operations until his successor, Fleet Admiral Chester W. Nimitz, took over. Admiral Nimitz was designated for the post on November 20, but did not assume office until December. (Admiral King, past the statutory retirement age of 64, had expressed a desire to step down as operations chief, and had submitted his resignation after V-J Day.)

Admiral King was graduated from the United States Naval Academy (1901), fourth in his class. In the First World War, he was a member of the staff of the commander in chief of the U. S. Atlantic Fleet, eventually the fleet's assistant chief of staff. From September 1923 to July 1926, he commanded the Submarine Base at New London, Conn., and while on this duty, was in charge of raising the U.S.S. *S-51,* sunk off Block Island, Sept. 25, 1925. He handled this undertaking with such success that he was detailed in December 1927 to command the force which raised the U.S.S. *S-4,* rammed and sunk off Provincetown, Mass. For the first of these achievements, he was awarded the Distinguished Service Medal, to which was added a gold star in lieu of a second DSM for his work in salvaging the *S-4.* In June 1927, Admiral King qualified as a naval aviator, after flight training at Pensacola, Fla., and from August 1928 to August 1929, was assistant chief of the Bureau of Aeronautics. There followed tours of duty as commander of the Naval Air Station, Norfolk, Va.; commanding officer of the U.S.S. *Lexington;* and chief of the Bureau of Aeronautics, April 1933–June 1936, with the rank of rear admiral. From 1938–39, as vice admiral, he commanded the Aircraft Battle Force, United States Fleet; was a member of the general board of the Navy Department, 1939–40; and commander in chief, U. S. Atlantic Fleet, February–December 1941. His navy rank, admiral of the fleet, was authorized in December 1944.

KINKAID, Thomas Cassin, United States naval officer: b. Hanover, N.H., April 3, 1888. Admiral Kinkaid commanded the United States Seventh Fleet for the final months of the Pacific War, and lent naval support to all Gen. Douglas MacArthur's major operational landings—in the Admiralties, Hollandia, the Philippines, and Borneo. On Oct. 24, 1944, his Seventh Fleet, with Admiral Halsey's Third Fleet, dealt the Japanese Navy its death blow in the battle of Leyte Gulf, definitely sinking 24 enemy ships and scoring hits on an additional 58. In mid-November, 1945, the Pacific war at an end, announcement was made of Admiral Kinkaid's appointment to succeed Admiral Royall Ingersoll as commander of the Western Sea Frontier, with headquarters at San Francisco, Calif. Admiral Kinkaid is a veteran of the battles of the Coral Sea, May 4-8, 1942, and of the Solomon Islands, Aug. 24, 1942. In August 1943, as commander of United States naval forces in the North Pacific and chief of combined military operations in that area, he scored a third victory over the Japanese with an unopposed landing on Kiska, one-time Japanese-held island in the Aleutians. He was transferred from the North Pacific in October 1943, and ordered to General MacArthur's Southwest Pacific Command; in late November, he assumed command of Allied naval forces in that theater. A graduate of the United States Naval Academy (1908), he was gunnery officer aboard the U.S.S. *Arizona* in the latter months of the First World War. From November 1938 until March 1941, he was naval attaché and naval attaché for air at the American embassy in Rome, with additional duty from March 1939 as naval attaché at Belgrade, Yugoslavia. With Italy's declaration of war on France, he returned to the Navy Department, and from March to December 1941, was attached to the Office of the Chief of Naval Operations. After the Pearl Harbor attack, he went immediately to the Pacific theater where he assumed command of a cruiser division. In October 1942, he became commander, Cruisers, Pacific Fleet. Admiral Kinkaid's service medals include the Distinguished Service Medal; two gold stars in lieu of second and third DSM's; the Presidential Unit Citation ribbon awarded personnel of the U.S.S. *Enterprise,* his flagship during part of the Pacific operations; the Victory Medal, Atlantic Fleet Clasp; and the American Defense Service Medal.

KIRGHIZ SOVIET SOCIALIST REPUBLIC. See UNION OF SOVIET SOCIALIST REPUBLICS.

KLAIPEDA (MEMEL). Port on the Baltic Sea, and strip of territory extending from the port up the right bank of the River Nemunas (Niemen, Memel), the port constituting Lithuania's only natural sea outlet. Area of the territory (1940), 1,081 square miles; population, mainly Lithuanians, 153,000. Population of the port of Klaipeda, approximately 50,000. Detached from Germany by the Treaty of Versailles, the territory of Memel became in May 1924 (under an Allied convention), a unit within the sovereignty of Lithuania. In March 1939, under threat of

force by Hitler, it was surrendered by Lithuania to Germany. The Germans agreed to permit Lithuania a free port zone in Memel harbor. Overrun by the Germans in their drive to the east in June 1941, on Oct. 23, 1944, the territory of Memel was reported recaptured by the Red Armies, although the Germans still retained the port. On Jan. 28, 1945, Soviet forces recaptured the port, which with its territory, now became part of the Lithuanian Soviet Socialist Republic, under the name of Klaipeda.

KNIGHTS OF COLUMBUS. This fraternal benefit society was incorporated by the State of Connecticut March 29, 1882. Its purposes include the rendering of aid to members and beneficiaries of members, the promotion and rendering of educational, charitable, religious, social welfare and public relief services. Benefits totaling over $65,000,000 have been paid to members and beneficiaries. There are two types of membership—insurance and associate. On June 30, 1945, insurance members numbered 224,142; associate members numbered 312,782, making the total membership 536,924. Over 80,000 members of the organization are serving or have served in the Second World War and approximately $25,000,000 of its funds are invested in the bonds of the United States and Canadian governments. It publishes *Columbia*, a monthly magazine. The 1945 annual meeting was held August 21-23 at Montreal, Canada. Officers include Francis P. Matthews, supreme knight, and Joseph F. Lamb, supreme secretary. Headquarters: 45 Wall Street, New Haven, Conn.

KNIGHTS OF PYTHIAS. A fraternal organization of white males with lodges in the United States, Canada, and the Hawaiian Islands; founded in Washington, D.C., Feb. 19, 1864, and chartered by special act of Congress. Its cardinal principles are friendship, charity, and benevolence. Its influences are for morality, education, and obedience to law, but it seeks to shape no creed. The order has a military department and three other recognized auxiliaries: the Pythian Sisters, Dramatic Order Knights of Khorassan, and Princes of Syracuse. The order is a great mutual relief corporation. It maintains 16 Pythian homes for aged members and their wives, widows, and children. During the year ended Dec. 31, 1944, $438,000 was expended for relief. The total membership is now a quarter of a million. The 1946 Supreme Lodge convention will be held in Tulsa, Okla. Officers for the present biennial term are: Charles J. Schuck, supreme chancellor, Wheeling, W.Va.; Willard M. Kent, supreme vice chancellor, Ithaca, N.Y.; Dr. Archie B. Jackson, supreme prelate, Jefferson City, Mo.; Mel M. Ewen, supreme keeper of records and seal, 1054 Midland Bank Building, Minneapolis, Minn.; Richard L. Meares, supreme master of exchequer, Indianapolis, Ind.; F. Duncan Meade, supreme master at arms, Calgary, Alberta, Canada; Fred L. Sylvester, supreme inner guard, South Portland, Me.; Oscar G. Brenneman, Harrisburg, Pa.

KNOBLOCK, Edward, Anglo-American playwright, scenarist, and novelist: b. New York City, April 7, 1874; d. London, England, July 19, 1945. One of the leading playwrights in Great Britain, Edward Knoblock achieved his first great success with *Kismet* in 1911. Graduating from Harvard University in 1896, Mr. Knoblock gained his first experience as an actor in London and became a British subject. During the First World War, he served as an intelligence officer in Greece. He wrote his first play, *The Club Baby*, with Lawrence Sterner in 1895, and turned out new plays and adaptions at the rate almost one a year from then until 1935. Among his plays are *The Faun* (1911); *My Lady's Dress* (1914); *Marie-Odile* (1915); *Tiger, Tiger* (1918); *The Lullaby* (1923); *The Mulberry Bush* (1930); *Grand Hotel* (1931; from the novel by Vicki Baum); *Rolling Stone* (1936); and *Bird of Passage* (1943). He collaborated with Arnold Bennett on the plays, *Milestones* (1912), *London Life* (1924), and *Mr. Prohack* (1927); with J. B. Priestley on the dramatization of *The Good Companions* (1931); with A. J. Cronin on *Hatter's Castle* (1932); with Beverley Nichols on *Evensong* (1932); and with V. Sackville West on *The Edwardians* (1934). He wrote the movie scenarios for the Douglas Fairbanks pictures, *The Three Musketeers* (1921), and *The Thief of Bagdad* (1923), and other films. His autobiography, *Round the Room*, was published in 1939.

KNUBEL, Frederick Hermann, American clergyman: b. New York City, May 22, 1870; d. New Rochelle, N.Y., Oct 16, 1945. Under the leadership of Rev. Dr. Knubel, president of the United Lutheran Church in America from its formation in 1918 until January 1945, this organization grew from a membership of some 800,000, when it was formed by the merger of the General Synod, the General Council, and the United Synod of the Lutheran Church in the South, to a present membership of 1,400,000 confirmed members.

KONEV, Ivan S., Soviet Army officer: b. 1897. Marshal Konev, 49-year-old commander of the First Ukrainian Army for the 1945 Russian offensive against Germany from the east, was born in Ladeino (Podosinovskii District, the Archangel Region) of a peasant family. For a time he attended the village school, then at the age of 12 went to work as a lumberjack. He was called to service with the Imperial Army in the spring of 1916, and was ordered to the Tarnopol front the next year. In the February Revolution, he sided with the Bolsheviks; helped effect the confiscation of church and landowners' property in his native district in late November 1917; and organized the district's first Congress of Soviets. In May and June of 1918, he was delegate to the 5th All-Union Congress of Soviets. Konev entered the Red Army in 1919, and subsequently saw action against Semenov bands and the Japanese in the Soviet's Far Eastern Republic. In 1922, he became military commissar of the People's Revolutionary Army Staff, and two years later, was a corps commissar. In 1925, he began studies in Moscow, and with their completion in 1926, he was named commander and commissar of a rifle regiment. He was a member of the highest branch of the Communist Party, the All-Union Central Executive Committee, from 1931–34. In the latter year, he was graduated from Frunze Military Academy with highest honors, and given a rifle division command. He was appointed commander of the Second Far Eastern Army stationed at Khabarovsk in September 1938, and in June 1940, was promoted lieutenant general. Shortly after the German attack on Russia in 1941, Konev became one of Timoshenko's most valued assistants, and directed tank force operations against the German general, Heinz Guderian, on the Moscow front. In August 1942, while the bitter struggle for Stalingrad was at its height, Konev and Zhukov

launched the Soviet drive on the front west of Moscow. Twelve months later, Konev was one of the generals chosen to command the Soviet push on Orel and Belgorod, and his troops helped stifle the brief flareup of the German offensive, the last attempted on Russian soil. His army later took part in the liberation of Kharkov, second Ukrainian capital. In February 1944, the German Eighth Army (the emnants of 10 divisions) was annihilated on the bank of the Dneiper (Dnepr) River in the Ukraine, west of Cherkassy; this was the work of Konev and the late Gen. Nikolai Vatutin. After this operation, Konev was given Russia's highest military title, marshal of the Soviet Union. On March 19 troops of his Second Ukrainian Army crossed into Bessarabia, and by March 26, had driven the Germans back to the southern line from which they started their invasion in 1941. For the Soviet offensive of January 1945, Marshal Konev commanded troops of the First Ukrainian Army; on May 2, his forces, with those of Marshal Zhukov's First White Russian Army, completed the occupation of the German capital of Berlin, fourth largest city in the world. Marshal Konev's military decorations include the orders of the Red Star, the Red Banner, Lenin, Suvorov (1st degree), and Kutuzov (1st degree); in April 1945, he received the Red Army's highest award, the Order of Victory.

KONOYE, PRINCE **Fumimaro,** Japanese statesman: b. Tokyo, October 1891; committed suicide there, Dec. 15, 1945. Three times premier of Japan, Prince Konoye has been named a war criminal in the list issued by General MacArthur on December 6. Taking poison on the eve of his surrender to Allied authorities, he left a note in which he confessed: "I have been most gravely concerned with the fact I have committed certain errors in the handling of state affairs since the outbreak of the China incident. I cannot, however, stand the humiliation of being apprehended and tried by an American court."

Born of one of Japan's oldest and most distinguished families, Prince Konoye was educated at Tokyo College and Kyoto Imperial University, where he was graduated with a law degree in 1917. He then became a member of the nonregular home ministry, and attended the Paris Peace Conference in 1919 as one of Prince Saionji's secretaries. Back in Japan, he took his hereditary seat in the House of Peers, and from 1933 to 1937 served as president of that body. In 1934, after the Manchurian incident had disrupted Japanese-American relations, he was sent to the United States on a goodwill tour, and two years later he refused the offer of the premiership. However, as an independent nonparty aristocrat, he became premier on June 3, 1937, and formed a national union Cabinet. A month later the undeclared Sino-Japanese War broke out near Peiping (Peking). On Jan. 4, 1939, he resigned as a result of the army's demand for greater control of the Japanese economic system. Subsequently, he served as minister of state without portfolio and as president of the Privy Council. On July 23, 1940, he was named premier for a second time and commanded by the emperor to form a new government. He effected a drastic Cabinet shake-up and organized his new "national party" along fascist lines. On August 1, his government announced that it would pursue a totalitarian policy which would include Japanese domination over Asia. During his tenure, the Burma Road was closed by the British, French Indo-China was invaded, the Rome-Berlin-Tokyo pact was signed, and relations with the United States over control of the Pacific became strained. On July 16, 1941, his Cabinet resigned, and two days later he returned to his post as premier and reshuffled his Cabinet. The third Konoye government lasted only until Oct. 16, 1941, when he resigned because of disagreement among ministers "concerning the manner of executing national policy." Lieut. Gen. Hideki Tojo, war minister in the Konoye Cabinet and admitted representative of Japanese militarists, then became premier. After the American occupation of Japan, Prince Konoye came briefly to the fore because of his undertaking to write a new democratic Japanese constitution. Early in November, however, Allied headquarters made it known indirectly that he and his commission no longer figured in moves being made to set up a new fundamental law for the country.

KOREA. A country of eastern Asia, independent until annexed in 1910 by the Japanese, to whom it was known as CHOSEN. Restoration of independence "in due course" was pledged by leaders of the United Nations in the Cairo Declaration of Dec. 1, 1943. The area is 85,246 square miles, and the population (1940 census) 24,326,327; Japanese constitute less than 3 per cent of the people. Seoul (Keijo) is the capital (pop. 706,396), and other large cities are Pusan (Fusan), 249,734; Pyeng-Yang (Heijo), 185,419; Taegu (Taikyu), 110,866; and Chemulpho (Jinsen), 102,473. Estimated ordinary revenue for 1941–42 was 732,544,000 yen, and expenditure 551,787,000 yen; public debt as of March 1938 was 593,646,215 yen. Primary schools (1939) were 9,695 (6,029 privately established), with 1,107,954 pupils (205,086 in those privately established). Teaching of the Korean language was abolished in 1940; instruction in Japanese is compulsory. Half of secondary school pupils (70,000) were Japanese; at Seoul University were 350 Japanese and 206 Korean students. American and British missionary colleges educated 4,000 students. Korea, primarily agricultural, has 3,000,000 farms on 11,000,000 acres. Much of the rice produced (106,775,869 bushels in 1940) goes to Japan; other crops are millet, beans, barley, potatoes, and vegetables. Cotton is cultivated (157,752,637 pounds in 1940), and silkworms reared (22,713,000 kilos of cocoons in 1940). Livestock included (1939) cattle, 1,705,000; hogs, 1,400,000; horses, 51,000; and sheep, 20,000. Fishing (catch in 1939 valued at 151,090,000 yen) increases in importance. Principal minerals are gold, iron, coal and graphite; others include lead, mica, molybdenum, wolfram and zinc. Manufactured products (in 1942 valued at 2,700,000,000 yen) comprise chemicals (31 per cent of the total value), foods and beverages (24 per cent), textiles (14 per cent) and metals (8 per cent). Principal chemical product was sulphate of ammonia; foods and beverages included wines and liquors, soy, *miso* (bean paste), flour, candy, starch, and refined sugar; textiles comprised cotton goods and woven silk, rayon and fiber; and metal industries were chiefly the production of steel, aluminum and magnesium, shipbuilding, and electrical apparatus. In 1941 there were 3,524 miles of railroads and 19,000 miles of highways. The Korean provisional government at Chungking, though not recognized by any government, declared war against Germany on Feb. 28, 1945. The Tokyo radio reported on April 1 that Korea had been granted

representation in the Japanese Diet. On June 8, Acting Secretary of State Joseph C. Grew declared that the United States government policy, "that in due course Korea shall become free and independent," was still in force.

KORNGOLD, Julius K., Austrian music critic: b. Brno (Brünn), Moravia (now part of Czechoslovakia), Dec. 24, 1860; d. Hollywood, Calif., Sept. 25, 1945. Dr. Korngold studied law before making music his profession. From 1902 to 1934 he served as music critic of the Vienna *Neue Freie Presse* and was credited with the discovery of several noted musicians, among them Artur Schnabel, Erica Morini, and Nathan Milstein. When Hitler invaded Austria, Korngold came to the United States in 1938 to join his son, Erich Wolfgang Korngold, who has been active in Hollywood as a composer for the films. Dr. Korngold published several volumes of essays on contemporary opera.

KROFTA, Kamil, Czech diplomat and statesman: b. 1876; d. Vraz Sanatorium, Czechoslovakia, Aug. 18, 1945. Czechoslovak minister of foreign affairs from March 1936 to October 1938, Dr. Krofta carried on the democratic anti-Nazi policy of President Eduard Beneš, whom he succeeded as foreign minister and whose right-hand man he was, until after the Munich agreement, when he was ousted in an effort to improve relations with Germany and Italy and to please dissident Slovaks. Educated at the universities of Prague and Vienna, Dr. Krofta served first as professor of history and later as professor of the history of religion at the University of Prague until 1920, when he entered the diplomatic service. In 1921, he was appointed minister to the Holy See, then minister to Austria (1922–25); and minister to Germany (1925–27). From 1927 to 1936 he was undersecretary of state for foreign affairs. As minister of foreign affairs, Dr. Krofta strengthened the Little Entente, opposed the demands of the Sudeten Germans for autonomy, and insisted on the validity of Czechoslovakia's alliance with France and her pact with Russia. Distinguished as a scholar, he was the author of many books, notably *A Short History of Czechoslovakia* (1934), written in English. Shortly before his death, Dr. Krofta had been released from a Nazi concentration camp.

KRUEGER, Walter, United States Army officer: b. Flatow, West Prussia, Jan. 26, 1881. General Krueger commanded the American Sixth Army for General MacArthur's return to the Philippines by way of Leyte, Oct. 20, 1944, and for the later invasion of Luzon, largest of the Philippine islands, Jan. 9, 1945. He was assigned to the Sixth Army command in February 1943 at the request of General MacArthur.

One of the most thoroughly educated men in the United States Army, General Krueger has explored almost the entire military training system, either as student or instructor, and is a graduate of the Infantry-Cavalry School (1906); the Command and General Staff School (1907); General Staff College, Langres, France (1918); Army War College (1921); Naval War College (1926); and the Air Corps Primary Flying School (1927).

Walter Krueger was brought to the United States at the age of eight years. A student in the Technical High School, Cincinnati, at the outbreak of the Spanish American War, he left school to enlist in June 1898. He served in Cuba as a noncommissioned officer until mustered out of the volunteer service in February 1899. He re-enlisted in the Regular Army four months later, and in 1901, was commissioned second lieutenant in the infantry, after service on Luzon during the Philippine Insurrection. There followed, after 1903, a period of service in the states before he returned to the Philippines as a topographical inspector in charge of mapping the islands. Few men are more familiar with the military features of the Philippines than General Krueger. In the First World War, he saw action in France with the 26th Division, later with the Tank Corps, AEF. After the war, he held a variety of posts, administrative and otherwise, at army camps and schools throughout the country. In October 1940, he assumed command of the 8th Army Corps at Fort Sam Houston, Texas; in May 1941, of the Third Army, with headquarters at San Antonio, Texas, a post he held until ordered overseas with the Sixth in early 1943.

General Krueger holds the Distinguished Service Medal, the Order of the Aztec Eagle, (Mexico), and the Legion of Merit, awarded him in 1943 for his service as chief of the American Third. He was promoted a full general (temporary) in March 1945.

KURIA MURIA ISLANDS. See ARABIA.

KURILE ISLANDS. A chain of 32 islands and many rocks, (ceded by Russia to Japan in 1875), and stretching for a distance of nearly 750 miles, between the Kamchatka Peninsula, and Hokkaido, northernmost island of Japan proper; total area, 3,994 square miles. They are known to the Japanese as the Chishima Islands and are relatively unimportant economically.

Bombing raids on the Kuriles by United States planes, begun in July 1943, were frequent and intense throughout 1944, reaching Paramushiro, main northern stronghold of the Kurile group, Shimushu, Onnekotan, Matsuwa, and Shashikotan also in the northern Kuriles, and Shimushiri and Ketoi, only about 400 miles from Japan proper. On Sept. 1, 1945 it was announced that Russia's Far Eastern armies had completed occupation of the Kuriles.

KUWAIT. See ARABIA.

KWANGCHOWAN. See FRENCH INDO-CHINA.

KWANTUNG. The southern portion of the Liaotung Peninsula in Manchuria (with Port Arthur, which the Japanese called Ryojun, near its southernmost tip), which before the Russo-Japanese War (1904–05) had been leased by China to Russia, and was subsequently leased to Japan. Under the Sino-Soviet agreement of Aug. 14, 1945, it is to be restored, as part of Manchuria, to China; but Dairen, as terminus of the South Manchurian Railway, is to be under joint control of the two powers signing the agreement, and Port Arthur is to be used by both powers as a naval base. (See MANCHURIA for further details.) The Kwantung area is about 1,438 square miles in extent, and according to Japanese estimates had in 1935 a population of 1,656,726, including 1,009,970 Chinese and 174,587 Japanese. Until the Japanese surrender, in August-September 1945, Kwantung was administered by a governor general, whose headquarters was Dairen. For the Japanese, representing less than 11 per cent of the population, school facilities were reported (at the end of 1936) for 63,214, or 36 per cent. Of the other 89 per cent of the population, including over 1,000,000 Chinese, only 57,516, or less than 4 per cent were at school. The estimated budget for 1938–39, in which revenues balanced expenditures, was 23,021,204 yen. Ag-

ricultural products include Indian corn, millet, beans, wheat, buckwheat, rice, tobacco, hemp, and vegetables. Fishing is important. Salt is the leading manufactured product. Dairen has an excellent harbor, ice-free throughout the year, and under the Sino-Soviet agreement is to be free to the shipping of all nations.

Kwantung, as here described, is not to be confused with the province of Kwangtung in southern China.

L

LABOR CONDITIONS IN THE UNITED STATES. The last year of the war was in many respects the peak year of labor's participation in the war. Total employment in July 1945 was smaller than in July 1944, but because of increases in military personnel and reductions in the civilian labor force, unemployment remained approximately the same. Few important changes occurred in wages, in consumers' prices, or in wartime controls of manpower, wages, and prices. The surrender of Japan, however, was followed by a sharp decline and rapid shifting of employment, the curtailment of hours and of average earnings, the removal of manpower controls, modifications of the controls of wages and prices, the ending of the pledge against strikes and lockouts, and an outburst of industrial disputes centering largely about demands for wage increases.

Reconversion plans were dislocated by the unexpectedly short interval between the defeat of Germany and the surrender of Japan. An important reconversion plan affecting labor was the proposed extension, by means of federal aid, of unemployment benefits to war workers not covered or covered inadequately by state systems, together with the granting of travel aid to war workers in their return to their homes or their transportation to other places where jobs could be obtained. The major long-term plan affecting labor was embodied in the Full Employment Bill. On these measures no final action had been taken by Congress up to November 9.

In spite of the wartime subordination of normal collective bargaining to emergency controls, unions continued to extend the area of collective agreements. Labor's interest in problems of an international nature was reflected in demands for a voice in the peace settlements and in a movement (supported by the CIO and opposed by the AFL) to reorganize international trade unionism on a more comprehensive basis that would include, in particular, the CIO and the labor organizations of the Soviet Union.

Various proposals were made for the strengthening of the Department of Labor and the unification under the department of various labor functions performed by other agencies. Special emphasis was given to the strengthening of the Conciliation Service for aiding in the settlement of industrial disputes on a voluntary basis under collective bargaining after the war. Initial steps included the transfer, on September 19, of the War Manpower Commission and the National War Labor Board to the Department of Labor. A labor-management conference was called to meet in November to consider industrial relations after the lapse of the wartime pledge against strikes and lockouts.

Employment and Unemployment.—The passing of the peak of war production, combined with improved techniques of production, caused a continued decline in factory employment. The number of wage earners and salaried employees combined in manufacturing establishments was smaller by 1,559,000 in June 1945 than in June 1944. The tentative beginning of reconversion was reflected in a rise of 154,000 in the number of construction employees. The number of employees in all nonagricultural establishments fell from 38,846,000 to 37,549,000, a decline of 1,297,000.

The employment of production workers (substantially equivalent to wage earners) fell off sharply, especially in war industries, the number in aircraft, aircraft engines, and shipbuilding alone being reduced by almost 700,000 between June 1944 and June 1945. The number in bituminous-coal mining fell from 356,000 to 331,000, following earlier declines, the average for 1939 being 371,000. The number of hired farm workers underwent little change during the year, although the June 1945 employment of 2,357,000 was significantly smaller than the 3,099,000 employed in June 1939. The effects of contract cancellations after V-J Day were reflected at once in a decline of 1,600,000 (11 per cent) in the number of factory workers between July 31 and August 31. The largest reductions were in aircraft (51 per cent) and shipbuilding (20 per cent).

Labor turnover figures for manufacturing industries also indicate the downward trend of employment. The accessions rate in June 1945 was 59 per 1,000, as compared with 76 per 1,000 in June, 1944, a reduction of 22 per cent. The discharge rate and the quit rate underwent little change but the lay-off rate rose from 50 to 170 per 1,000.

The unprecedented shift of workers from industry to industry and from region to region, as indicated earlier in the war by percentages of increase in employment, was reflected during the current year in varying rates of decrease. Figures of factory employment in metropolitan areas show that between June 1944 and June 1945 only 2 of these areas (Des Moines, Iowa, and El Paso, Texas) experienced increases in employment. The reductions in employment ranged as high as 37.9 per cent, in the Jacksonville, Fla., area, and several other metropolitan areas also experienced declines of 25 per cent or more. Shifts in the industrial composition of employment may be illustrated by the declines of 36 per cent in shipbuilding, 31 per cent in aircraft engines, and 29 per cent in aircraft, small increases in various manufacturing industries, including fertilizers and petroleum refining, and a rise of 36 per cent in new non-federal construction projects.

Estimates of the total civilian labor force (including both the employed and the unemployed) throw light on the immediate effects

of the ending of the war. Between the week ending August 11 and the week ending September 8, the decrease in employment was about 2,270,000. The increase in unemployment was about 820,000, the civilian labor force declining, during the same period, by about 1,450,000 because of withdrawals of students and others from the labor market.

Reconversion Employment Problems and Policies.—Reductions in employment up to June 1945 caused little net unemployment because of the continued shortage of workers in many industries and areas. The situation changed suddenly, however, with the surrender of Japan, and plans made for gradual reconversion were either abandoned or adapted as far as possible to meet the new conditions. Main reliance was placed on a program of removing unnecessary restrictions on production and employment and the flow of materials for the purpose of speeding the transition to production for civilian use, but the removal of restrictions was combined with a policy of retaining control of the flow of certain scarce materials and of continuing basic controls of prices, wages, and rationing to an extent deemed essential for preventing inflation.

The easing of manpower controls had begun before the end of the war, largely on the basis of adjustments by area manpower officials to facilitate the transfer of workers to meet reconversion needs whenever this would not interfere with war production. On August 14 a reconversion program was announced for a general removal of war manpower controls, including the compulsory 48-hour workweek, and for adapting the facilities of the organization to the re-employment of displaced workers in civilian industries.

The declines in employment resulting from the completion or cancellation of war contracts did not necessarily mean equivalent increases in unemployment, because it was expected that many workers would no longer seek employment after the end of the emergency wartime demand for workers. It was estimated, for example, by the War Manpower Commission, that between 4 million and 5 million boys and girls of high-school age had been employed in stores and factories and on farms. The commission, together with the Children's Bureau and the Office of Education, sponsored a nationwide back-to-school drive primarily in the interest of education but incidentally for the purpose of employing displaced adult workers and returning veterans.

One of the problems of reconversion employment rose from the different interpretations of the re-employment rights of veterans. The director of Selective Service interpreted the Selective Training and Service Act as giving to a returning veteran who meets the re-employment conditions prescribed by law an absolute right to be restored to his former position or a position of like seniority, status, and pay. This interpretation was held by the unions to be a "superseniority" that would tend to destroy the long-established systems of seniority prevailing in numerous industries, systems which, it was held, returning veterans as workers were interested in maintaining. A somewhat similar view was held by many employers. The board of directors of the Chamber of Commerce of the United States asserted that the requirement of absolute reinstatement would result in great inequity and "the complete disruption of employment relations as contained in collective bargaining contracts."

The president, in messages to Congress on May 28 and September 26, urged the immediate enactment of a bill providing for supplemental employment benefits in the form of compensation payments up to $25 per week for a period as long as 26 weeks. Special unemployment assistance had already been granted to demobilized veterans for as long a period as 52 weeks. More than 15 million workers were unprotected by existing unemployment insurance laws, and many of those covered were given inadequate protection. The unprotected workers included war workers employed by the federal government in navy yards, arsenals, and government offices. Proposals were also made in Congress for providing financial assistance in the form of travel expenses to displaced workers who had left their homes to engage in war work.

The movement of workers into war industries and the beginnings of the reverse movement gave special significance to detailed state and regional statistics of employment, hours, and earnings. A program for supplying such information was developed by the Bureau of Labor Statistics in co-operation with other agencies.

Planning for Full Employment.—The unexpectedly short interval between the end of the war in Europe and the defeat of Japan prevented the carrying into effect of some of the plans for dealing with employment during the reconversion period. It became apparent that serious reconversion unemployment would be unavoidable.

Full employment beyond the reconversion period became the chief long-run objective of domestic policy. This goal was reflected in the emphasis given to the problem and the commitments made by party leaders in the 1944 election campaign. It also found expression in the reports of the director of the Office of War Mobilization and Reconversion, as well as in other official reports; in the formation of a Commerce-Labor Interdepartmental Committee on Full Employment; in studies issued and programs formulated by private organizations, including labor unions, the Committee for Economic Development, and the National Planning Association; and in widespread discussion by the general public. The effects of different types of domestic full employment programs on the foreign trade of the United States were explored by the Interdepartmental Executive Committee on Economic Foreign Policy. In adopting the charter of the United Nations Organization at San Francisco the United States and other nations accepted an obligation "to take joint and separate action in co-operation with the organization to achieve . . . full employment."

The chief center of public interest in this problem, however, was the Full Employment Bill of 1945, introduced in the Senate on Jan. 22, 1945, and later in the House. This bill proposed that the president submit annually to Congress a national production and employment budget. This budget would contain estimates of the total volume of expenditures by major types required to maintain full employment and the extent to which, if at all, actual expenditures might be expected to fall short of that amount. Whenever a "prospective deficiency in the national budget" is to be expected, the president, under the bill, would formulate broad programs for stimulating private and other non-federal expenditures; and if these were viewed as insufficient, he would submit further programs

of federal expenditures such as might be viewed as necessary to assure full employment. If the estimated normal expenditures should exceed the amount deemed necessary to maintain full employment, the president would propose taxation or other measures designed to restrain spending and thereby to prevent inflation. A congressional joint committee on the national budget was proposed, to receive and study the national budget message of the president and to make findings and recommendations designed to serve as a guide in the formulation of full employment policies. The bill was significant primarily not in providing actual assurance of full employment but rather in its acceptance of the principle of public responsibility, combined with its attempt to establish a tentative procedure for handling the problem.

Occupational Readjustments.—The war profoundly changed the occupational structure of the American economy. Industrial skills and experiences were diversified and enriched by the war; but because these changes arose from the special demands of a war-centered economy, a lack of occupational balance is to be expected after the war between the skills required by postwar jobs and the trained labor supply. To many individuals this means a difficult readjustment; to society, a major problem of educational planning.

The war accentuated prewar trends towards an increasing proportion of operatives (semi-skilled workers), clerical workers, and managerial occupations. It accentuated prewar trends toward decreasing proportions of farmers, farm laborers, and unskilled workers in industry. It reversed prewar trends toward a proportionate increase in the numbers of professional, sales, and personal service workers. It boosted sharply the ratio of skilled workers—a group which had constituted a fairly constant proportion of the labor force for the preceding three decades. From the point of view of peacetime needs, disproportionate numbers of the 15 million men and women who served in the armed forces received training in technical skills, such as the aviation and radio occupations.

Equally significant with these net changes in the numbers employed at different types of jobs were the changes experienced by individuals in particular occupations. The labor demands of a strained economy gave people a better chance to find work at their highest levels of skill. Hiring standards were generally lowered and advancement was more rapid, resulting in a general advance in the occupational status of individuals. Large numbers of women learned semi-skilled occupations in factories, clerical, and managerial work. Negroes made significant gains in fields in which their numbers had previously been relatively small, such as semi-skilled occupations in industry.

The postwar return to the long-term trends of peacetime occupational demands was expected to intensify competition not only for jobs at those higher levels of skill for which the war created an oversupply of trained workers but for many other jobs as well. Thus, it was apparent that thousands of welders, metal-working machine operators, aircraft pilots and mechanics, radio and electronic equipment technicians, and persons with similar skills would have to seek other types of jobs. At the same time, relative shortages were expected in such occupations as those of physicians, civil engineers, teachers, skilled construction workers, sales personnel, and personal service workers. Studies of these conditions and trends, undertaken by the Department of Labor, were designed to facilitate educational planning and individual readjustments.

Hours of Work.—One of the noteworthy differences in trends during the First and Second World wars was in hours of work. The average factory workweek declined from 49.4 hours in 1914 to 46.3 in 1919, but rose sharply after 1939, from 37.7 hours in that year to 45.2 in 1944. In hours of work as well as in number of workers, employment in war production passed its peak in 1944. In manufacturing the average fell slightly from 45.4 hours per week in June 1944 to 44.6 hours in June 1945. The reductions were predominantly in the durable-goods industries and were particularly noteworthy in some of the industries connected with war production. In the durable-goods industries there were decreases in 52 of the 65 industries reporting to the Bureau of Labor Statistics, in contrast to increases in almost one half of the nondurable-goods industries. Reductions occurred in only 2 of the 14 nonmanufacturing industries reporting to the Bureau of Labor Statistics and these two (retail trade and the telegraph industry) showed only slight declines. Estimates of hours worked by all nonagricultural employees (including the self-employed) indicate a decline similar to the reduction of hours in manufacturing industries, the estimated general average falling from 45.7 hours in June 1944 to 44.6 hours in June 1945.

The concept of working time in mining underwent a significant change during 1944 and 1945. The union agreement in the bituminous-coal industry, adopted late in 1943 and approved by the National War Labor Board in May 1944, provided for the inclusion of travel time in the mine as compensable time. Following this precedent, and conforming to the Supreme Court decisions of March 1944 relating to iron mining and of May 1945 relating to coal, the 1945 anthracite agreement contained a similar provision.

The slight declines in average hours up to June 1945 were primarily a result of cutbacks in war production, accompanied by increases in labor turnover and part time. The ending of the compulsory 48-hour week after the defeat of Japan, the rapid cancellation of war contracts, and the desire of employers to reduce the amount of premium payments for overtime were factors which became effective for the most part after June. The normal work schedule in most employments before the war was 40 hours, and the end of the war was expected to cause a widespread reversion to the 40-hour scheduled workweek. The sharp curtailment of the earnings of industrial workers resulting from the cutting down of the workweek and the elimination of premium payments for overtime was a major factor in the efforts of unions to obtain adjustments of wage rates.

The hours of federal employees, with few exceptions, were reduced in July to 44 per week, and after the defeat of Japan, the basic 40-hour week (in place of the prewar 39-hour week) was adopted in most agencies, in accord with the Federal Employees Pay Act of 1945. The addition of an hour to the normal workweek of federal employees was accompanied by the 5-day week.

Average Weekly Earnings.—The average weekly earnings of factory workers continued the war-

time advance during 1944, rising from $46.24 in June 1944 to $47.50 in January 1945. A decline followed, the June 1945 average being $46.32. The reductions were largely, as in the case of weekly hours, in the durable-goods industries. Increases occurred in all of the nonmanufacturing industries reporting to the Bureau of Labor Statistics, and also in railroad transportation. The average for railroad employees rose from $44.98 in May 1944 to $45.91 in May 1945.

The large increases in earnings during the war came about in considerable part as a result of temporary factors such as increased hours, premium payments for overtime, shifts of workers to high-wage employments, and upgrading. The cutting down of earnings by the reversion to prewar hours (normally the scheduled 40-hour week), the decline of employment in such high-wage industries as shipbuilding, and the reclassification and downgrading of workers created serious problems of reduced earnings, problems which became increasingly acute after the defeat of Japan. A considerable part of the earlier increases in weekly earnings had been counterbalanced by increases in prices and by such conditions as the disappearance of low-priced goods, deterioration of quality, and difficulties of marketing conditions, especially in war production centers.

The problem of declining weekly earnings was the more serious because the weekly wage was no longer a measure of "take-home" pay. It was estimated by the Bureau of Labor Statistics that as a result of pay-roll deductions for taxes and bonds a factory worker earning the average gross weekly wage of $46.32 in June 1945, before any considerable reductions in earnings occurred, received only $39.64 if he had three dependents, and if without dependents, only $33.87.

Average Hourly Earnings.—The average hourly earnings of factory workers rose from $1.017 in June 1944 to $1.046 in January 1945 but fell thereafter to $1.038 in June 1945. The increases occurred mainly in the nondurable-goods industries, which as a whole showed a rise of 5.2 per cent in hourly earnings during the year, as compared with an increase of only 1.5 per cent in the durable-goods industries. Hourly earnings declined in a few of the durable-goods industries but in none of the nondurable-goods industries. Similarly, all of the nonmanufacturing industries reporting to the Bureau of Labor Statistics underwent some increases in hourly earnings. The relatively large increases in nondurable-goods industries and nonmanufacturing industries followed a wartime lag of wages in many of these industries.

Premium payments for overtime, the shift of workers from low-wage to high-wage industries, and other factors in addition to changes in basic rates of wages continued to find reflection in average hourly earnings. The estimated straight time hourly earnings of factory workers in June 1945 averaged $0.969, in contrast to the gross average of $1.038. When the effects of the interindustry shifts of workers during the war as well as the effects of premium payments for overtime are eliminated, factory hourly earnings in June 1945 averaged $0.905. Premium overtime payments had undergone little decline as a proportion of gross hourly earnings, but the effect of the wartime shift of workers to high-wage industries was receding with the reductions of employment in war industries.

Wage Rates.—The wartime increases in basic wage rates were much smaller than were the increases in average earnings. The gross average hourly earnings of factory workers rose 53 per cent from January 1941 to April 1945. Factory hourly earnings adjusted for eliminating the effects of premium payments for overtime and of interindustry shifts in employment advanced 39 per cent. The estimated rise of urban wage rates in manufacturing during the same period was 32 per cent. A relatively small part of the increase in rates occurred after October 1942, and the rise from October 1944 to April 1945 was only 1.6 per cent.

Basic wage-rate increases in most of the nonmanufacturing industries were larger than in manufacturing, as is indicated by the following tabulation:

	Per cent of increase in wage rates from—	
	April 1944 to Oct. 1944	Oct. 1944 to April 1945
Manufacturing	2.2	1.6
Wholesale trade	2.9	1.5
Retail trade	5.7	4.6
Finance, insurance, and real estate	1.6	4.5
Local utilities	.3	1.5
Service trades	5.4	3.2

The relatively large increases in nonmanufacturing industries and in ordinary civilian-goods industries in the manufacturing group were contrary to trends in these industries during the earlier period of the war. The reversal of the trend is significant as indicating the passing of the peak of the demand for workers in war industries and as reflecting an effort on the part of workers to overcome the lag in wages in many fields not connected directly with war production. In addition, the National War Labor Board's policy of approving increases in substandard wages beyond the limits of the Little Steel formula benefited relatively large proportions of workers in these industries.

Farm wages, which had lagged behind nonfarm wages before the war, continued a relatively rapid wartime advance. The weighted average farm wage rate was 10 per cent higher in July 1945 than in the same month of the previous year.

The Federal Employees Pay Act of 1945, effective July 1, increased the base pay according to a graduated scale ranging up to 20 per cent in the lower brackets for employees in the classified Civil Service. This was the first increase in basic rates for federal employees during the war. The act also provided for the payment of time and one half when hours worked are more than 40 per week, approved a night-shift differential of 10 per cent of base pay, and shortened the waiting periods for automatic within-grade salary advancements from 18 to 12 months in the lower salaried groups and from 30 to 18 months in the higher salaried groups. The act also provided for bi-weekly instead of semi-monthly pay periods. In July, overtime was generally reduced to 4 hours per week, and after the defeat of Japan it was entirely eliminated for most of the employees of the federal government.

Policies and Proposals Relating to Wages.—Few significant changes occurred in national wage policy before the defeat of Japan. The National War Labor Board continued its program of wage stabilization in general conformity to the Little Steel formula but with minor adaptations, notably in the form of "fringe" adjustments. These were described as changes other

than in basic rates, such as premiums for extra shifts, allowances for vacations, and compensation during sick leave. Increasing attention was paid also by the board to job evaluation and reclassification plans as a means of encouraging balanced wage-rate structures.

A noteworthy change in policy occurred in connection with the stabilization of agricultural wages by the Department of Agriculture and State War Food Administration wage boards. A large increase occurred in the number of orders establishing wage ceilings in particular localities for specified types of farm labor, especially in the Western states. The policy was continued after the defeat of Japan, as for example, by an order of September 14 establishing wage ceilings for cotton picking and pulling in the Delta Area of Mississippi. No wage "floors" had been established by minimum wage laws for farm workers.

The National War Labor Board, in accord with an executive order of August 18, extended the scope of collective bargaining and permitted voluntary wage increases without its approval when not used to obtain permission to raise price ceilings. The president, in his message to Congress on September 6, recommended the amendment of the Fair Labor Standards Act for raising the 40-cent minimum, which he considered "inadequate when established" and which "has now become obsolete." He recommended also the extension of the act to include additional types of workers such as those engaged in agricultural processing industries. Estimates by the Bureau of Labor Statistics for the summer of 1945 indicated that 20 per cent of factory workers were receiving a straight time hourly wage of less than 65 cents, the proportion in the major industry groups in manufacturing running as high as 58 per cent.

The early stages of reconversion to peacetime production indicated sharp reductions in weekly hours and in the number of workers on extra shifts, with accompanying declines in hourly earnings and especially in weekly earnings. In addition, the earnings of many workers and the average earnings of large groups were being reduced by declines in shipbuilding and other industries paying comparatively high wages. Estimates by the Bureau of Labor Statistics of the effects of these changes indicated that if employment and wage rates remained at 1944 levels, the return to prewar hours would reduce wages and salaries by about $13,000,000,000. On the assumption of the continuance of 1944 wage rates, the shifting of employment away from high-wage industries would cause an estimated reduction of about $5,600,000,000 in total wages and salaries. Even the reduction of extra-shift premium payments would bring about a decline, it was estimated, of about $500,000,000.

Labor organizations were substantially in agreement in demanding increases in basic rates of wages to offset the reductions in weekly earnings resulting from such changes as those just mentioned. The arguments advanced by the unions in support of these proposals included the view that technological changes and advances in labor productivity, combined with the elimination of premium payments for overtime, would make possible substantial increases in basic rates without increases in unit labor cost. Wage-rate increases were also demanded on the ground that the volume of national production and income is vitally affected by the distribution and flow of income, and that wages should be maintained at high levels as a basis of avoiding an accumulation of unused savings and of maintaining adequate demand for the national product.

The director of War Mobilization and Reconversion, in his second report, April 1, 1945, urged a continuance of the policy of wage and price stabilization but indicated the need for ultimate wage increases. He stated that postwar declines in hours of work without compensating increases in wage rates would reduce earnings and standards of living. Referring to improvements in technology and increases in labor productivity as a basis for postwar advances in rates of wages, he stated: "I feel sure that ultimately, after the war, total take-home pay in the United States will reach the present level."

Technology, Labor Productivity, and Labor Cost.—Wage increases in nonwar industries during the war were limited not only by the wage stabilization program but also by the checking of cost reduction through technological change. The end of the war brought about the prospect of accelerated cost reduction by means of technological changes for economizing the use of both capital and labor.

Productivity in manufacturing industries as measured by average output per man-hour had increased before the war at a rate of more than 3 per cent per year. After 1941, however, war production requirements restricted any extensive installation of new equipment or development of new production techniques to war industries. Moreover, operations in nonwar production were handicapped by the loss of experienced workers to the armed forces and to war industries and by restrictions on production, shortages of materials, and the use of substitute materials. These difficulties were less pronounced during 1944 and early 1945, but they persisted until the close of the war, and man-hour output in these industries remained at approximately the 1941 level.

The war industries, in contrast, made tremendous gains in productivity as volume of output expanded and mass-production methods were adopted. Thus, in the aircraft industry, output per man-hour tripled during the years 1942–44. In the construction of Liberty ships, the number of man-hours required per vessel was cut in half over the same period. The large gains in man-hour output in the war industries resulted both from the adaptation of mass production methods which had been employed in civilian industries before the war and from the development of new techniques. The latter will be of continuing importance for peacetime production. Outstanding technical progress was made in fields most closely associated with war needs, particularly metals, chemicals, and rubber, but a few examples will indicate the postwar significance of wartimes changes. Methods of fabricating aluminum and magnesium were greatly improved. New welding techniques were developed which are more nearly automatic, and welding replaced riveting in many types of work, with great savings in labor. Inspection operations were speeded by the use of electronic devices, improved X-ray equipment, and magnetic materials. Marked progress was made in heat treatment of metals and in continuous casting techniques. High quality synthetic rubber was produced in quantity and the difficulties of fabricting the synthetics were overcome. New

methods were developed for the production of high-octane gasoline. Many additional types of plastics were produced.

The close of the war brought the prospect of extremely rapid increases in output per man-hour in civilian manufacturing industries. Manufacturers' plans call for a large amount of new equipment, to meet their accumulated replacement needs and to provide for anticipated expansion of production. In some industries, new production techniques which were on the threshhold of application before the war will be introduced. Manufacturing methods which originated in war production will find a variety of applications for peacetime use. Thus, it is likely that productivity will increase rapidly for several years.

Prices and Price Controls.—The consumers' price index for moderate-income families in large cities (formerly called the index of cost of living) increased almost 3 per cent during the year ended June 30, 1945, to reach the highest level since the spring of 1921. Living costs for the average city family were 30.8 per cent higher than in August 1939, the month before the outbreak of war in Europe. In a comparable period during the First World War, consumer prices rose 106 per cent.

Prices of all principal groups in the family budget rose between June 1944 and June 1945. Over the year, food prices increased 4 per cent; clothing, 5.4 per cent; housefurnishings, 5.3 per cent; rent, and fuel, electricity and ice were also slightly higher; and miscellaneous goods and services were almost 2 per cent above June 1944 levels.

Food prices, relatively stable from June 1944 to April 1945, rose sharply during May and June as prices of fresh fruits and vegetables moved upward. Prices paid in June 1945 for eggs and fresh fruits and vegetables were more than 12 per cent higher than in June 1944; prices for meats, particularly fish and chicken, were also somewhat above those of 1944. Meat became practically unobtainable during the spring months of 1945 as shortages that had prevailed since fall became more acute and widespread. However, with the end of the war in Europe, the prospects for larger supplies of meats improved appreciably. By June 1945, the average cost of all food at retail was 51 per cent above August 1939, and only 1.3 per lower than in May 1943, the highest level for food prices during the war.

The costs of clothing and housefurnishings purchased by urban families continued to rise as lower and medium-priced items disappeared and stocks of inexpensive apparel were reported at their lowest point. June 1945 marked the 24th consecutive month of advances in clothing costs and the 30th successive month of increases in costs of housefurnishings. Cotton clothing prices increased more than 8 per cent over the year, and wool clothing moved up almost 6 per cent over the same period. Prices for cooking stoves, living room, dining room, and bedroom suites, glassware, and sheets rose from 4 to 8 per cent on the average.

The average family was also paying more for many miscellaneous goods and services in June 1945 than in June 1944. Beauty-shop services and men's haircuts were higher, and costs of medical care and household operation were up, and recreation costs increased 3 per cent, reflecting advances in the prices of newspapers, motion pictures, and tobacco.

Throughout the year, rents remained relatively stable, but the housing shortage was still acute in many areas. By June 1945, rent costs for the city worker had increased less than 4 per cent above their level at the beginning of the war in Europe. Prices for fuel, electricity and ice rose about one half of one per cent over the year, as increases for anthracite and bituminous coal more than offset decreases in the prices of kerosine and ice and lower gas rates in some cities.

The Bureau of Labor Statistics index of wholesale prices, after slight fluctuations in 1943 and 1944, began an upturn in September 1944. The increase from June 1944 to June 1945 was 1.7 per cent. The largest rise in 10 major commodity groups was 4.3 per cent in farm products. A slight downturn of 0.3 per cent occurred in the chemicals group. The increase in the all-commodities index from August 1939 to June 1945 was 41.5 per cent, as compared with a doubling of prices from 1914 to the end of 1918.

Pricing problems and rationing in the reconversion period engaged much of the attention of officials as the end of the war approached. Policies announced on July 24 by the Office of Price Administration and the Office of Economic Stabilization called for removal of price controls if the commodity or service does not enter significantly into cost of living or business costs, if continued control involves administrative difficulties out of proportion to the expected results, and if suspension or exemption does not threaten reconversion or the impairment of effective price control of other items. The policy adopted, it was stated, would so simplify pricing problems as to enable the OPA (Office of Price Administration) to concentrate on crucial items and especially on the setting of prices for civilian goods coming back into production.

The president, in his message to Congress on September 6, gave strong support to the policy of price stabilization during the reconversion period. Prices must be held firmly, he stated, on reconversion items as well as on cost-of-living items. The president pointed to the long-range effects of high output and low unit costs, and urged that this basis of price stabilization be maintained in opposition to a short-range policy designed to insure prices high enough to provide immediate profits over and above the temporarily high costs of production due to initial low volume during reconversion.

Labor Organizations.—Few major changes occurred in labor organizations. The International Chemical Workers Union (AFL) and the Office Employees' International Union (AFL), which had been councils of federal labor unions, were given charters as international unions. The Utility Workers' Union of America (CIO) was formed as a combination of the earlier Utility Workers' Organizing Committee (CIO), the Brotherhood of Consolidated Edison Workers, and other former affiliates of the Independent Utility Workers' Union. The United Railroad Workers of America (CIO) was formed as an organizing committee. The International Typographical Union was reaffiliated with the AFL. Locals of the United Textile Workers (AFL) in the knitted goods industry were transferred to the International Ladies' Garment Workers Union (AFL). The International Air Line Mechanics' Association, formerly unaffiliated, became a part of the United Automobile Workers (CIO). The Aluminum Workers of America

was amalgamated with the United Steel Workers of America (CIO).

Outstanding developments during the war occurred in workers' education under trade union auspices and in the facilities for handling the public relations of labor organizations. An impetus to educational work was the continued growth of union membership, with accentuated problems of assimilating new workers and of developing union leadership. New educational and research departments were created and existing facilities were expanded. Increasing numbers of labor institutes and educational conferences were held. Special training courses were offered and a number of new labor schools came into being. The movement not only for educating union members and other workers but also for handling more effectively the public relations of unions made increasing use of such educational devices as radio broadcasts, films and other visual aids, pamphlets, leaflets, posters, comic strips, art, music, and dramatics. Another phase of the movement was an increasing degree of collaboration with colleges and universities. The political interests of labor organizations found noteworthy expression in the work of the CIO Political Action Committee in the 1944 campaign.

An interesting series of events centered around the proposed reshuffling of international trade union organizations. During the early months of 1945, various unions belonging to the International Federation of Trade Unions took steps to organize a more comprehensive international association that would, in particular, include as members both the trade unions of the Soviet Union and the American CIO. The AFL did not associate itself with these activities. The preliminary organization, established at a conference in London in February 1945, was known as the World Trade Union Congress or the World Federation of Trade Unions. Delegates from constituent unions were chosen for a meeting in Paris in September 1945, to consider a draft constitution, to seek agreement on the nature and functions of the proposed federation, and to explore its role in relation to the network of international organizations and agencies foreshadowed in the Charter of the United Nations Organization.

The international organizations and their constituent members, and also the AFL, acting independently, displayed keen interest in the Security Conference at San Francisco and in the formulation of the United Nations Charter adopted in June. The influence of labor organizations was reflected in some degree in the plan for the establishment of the Economic and Social Council of the United Nations and the provision for bringing into relationships with the United Nations such international agencies as were already in existence, notably the International Labor Organization (ILO). The influence of labor organizations was also apparent in the principles and policies incorporated in the United Nations Charter. These included the promotion of "higher standards of living, full employment, and conditions of economic and social progress and development."

The ILO and the United Nations Organization.—During the year, the activities of the International Labor Organization (ILO) moved at an accelerated tempo. There was no annual conference in this 12-month period, but the stage was set for a series of four international conferences between October 1945 and April 1946. Plans were also laid for the meeting of international tripartite committees, representing workers, employers, and governments, in certain important industries. The purpose of these committees is to provide additional machinery by means of which the organization can give special attention to the problems of particular industries.

An important part of the work of the governing body of the International Labor Office, of its staff, and of United States Department of Labor officials charged with the responsibility for maintaining liaison, was devoted to consideration of the role to be played by the ILO in the United Nations Organization. In May 1944, the governing body appointed a Committee on Constitutional Questions to deal with this and related matters. At a governing body meeting in January 1945, a statement was adopted affirming the desire of the ILO for association with the contemplated United Nations Organization on terms that would permit it, as a tripartite organization, to do its work most effectively. Members of this committee, and other representatives of the ILO and its secretariat, attended the San Francisco Conference of April-June 1945. Progress was made in clarifying the future place and status of the organization, but definite steps could not be taken until the United Nations Organization itself was actually established. In the meantime, the ILO turned to its peacetime activities with redoubled energy.

In June 1945, Miss Frances Perkins, then Secretary of Labor, made a statement to the governing body, meeting in Quebec, concerning the policy of the United States Government towards the ILO. In part, her statement was as follows:

> "And now, I have the opportunity to tell you on this occasion and to assure you of the continuation of the United States policy with regard to the International Labor Organization. President Truman has asked me to come here and to give that assurance on his behalf. He has asked me to say to you that the Government of the United States will continue to take full part in the work of the International Labor Organization and will continue to look to the ILO for leadership, information and guidance on the international plane in the improvement of labor standards and the development of measures to combat poverty everywhere. The President also hopes that the ILO will be able to pursue its activities in co-operative relationship with the proposed general organization of the United Nations, under arrangements providing sufficient autonomy to permit of its putting forth its greatest effort. He noted with pleasure that this same hope had been expressed by the Governing Body at its last meeting in London. It is the settled policy of the United States Government to seek for the ILO a proper place within the framework of the co-ordinated effort of the United Nations; under such arrangements, the President noted, the voices of industry and of labor as expressed through the ILO would continue to be real voices in the determination of world policy in all these matters of life and work."

Collective Bargaining.—Continued progress was made by labor organizations in the extension of collective agreements. As late as January 1942, less than one third of those workers in private industry who were potential members of unions were covered by union agreements. By January 1943 the proportion had risen to more than 40 per cent. Thereafter, progress was less rapid but by the beginning of 1944, approximately 13,750,000 workers, or about 45 per cent of potential union members, were employed under the terms of collective agreements. Most of these were in transportation, mining, construction, and manufacturing.

By January 1945, the number of workers employed under union agreements had risen to more than 14,300,000, comprising approximately 47 per cent of potential union membership. In

manufacturing, about 65 per cent of all production workers were covered, but the proportion varied widely from industry to industry. Hardly more than 10 per cent of the workers in the dairy products industry were covered, in contrast to more than 90 per cent in the aluminum, automobile, basic steel, brewery, fur, glass, men's clothing, rubber, and shipbuilding industries.

Among nonmanufacturing industries, about one third of the workers were covered by union agreements at the beginning of 1945. The covered workers were highly concentrated in certain industries, more than 95 per cent being covered in coal mining, maritime and longshoring work, and railroad transportation, including clerical and supervisory personnel. More than 90 per cent of the employees in iron mining and the telegraph industry were covered by collective agreements. In service occupations, nearly 25 per cent were covered, and in clerical and professional work, not quite 20 per cent. In manufacturing, financial, and business service establishments, and in wholesale and retail trade, only about 13 per cent of the clerical and professional employees were under agreement, in contrast to a major portion in transportation, communications, and public utilities and nearly all professional actors and musicians.

Industrial Disputes.—Estimates for the first six months of 1945 indicate 2,310 strikes and lockouts, involving about 1,250,000 workers and about 6,580,000 man-days of idleness. The number of man-days of idleness was equivalent to 0.15 per cent of the estimated available working time. The percentage in the year 1944 was 0.9, and in the year 1943 the same as in the first 6 months of 1945. The number of stoppages in the first 6 months of 1945 showed a slight reduction from the number in the same period of 1944 and a slight increase over the number in the same period of 1943. Stoppages were somewhat longer during the first 6 months of 1945 (5.3 days of idleness per worker involved) than in the year 1944, when the man-days idle averaged 4.1 per worker, but shorter than in 1943, when the average was 6.8 days per worker.

Wage questions in both 1944 and the first half of 1945 were the major issues. These included demands for increased rates and disputes over such questions as the application or operation of incentive systems, overtime rates, and the adjustment of individual rates. Many groups of workers were confronted with a larger increase in consumers' prices than in the wage rates that had been permitted under the national stabilization program. Second only to wage issues were disputes over intraplant working conditions and policies. These included such questions as discipline, job security, work load, physical conditions and hazards, work schedules, shift arrangements, and the duties and organizational rights of supervisors. Problems connected with the status of workers during reconversion to civilian production became increasingly important.

The no-strike and no-lockout pledge made by leaders of labor and industry soon after Pearl Harbor continued in effect during the year. In general, this pledge was faithfully kept. Nearly all of the strikes were spontaneous and unauthorized stoppages and in most cases union leaders used their influence to terminate the stoppages with a minimum of loss of time while the issues in dispute were being settled by negotiations between the parties or were being handled by government agencies. The conclusion of the war brought to an end the pledge against strikes and lockouts, and the number and seriousness of disputes tended to increase. Major questions related to the reclassification and status of workers in civilian production and the reduction of earnings resulting from reclassifications, shortening of work schedules, and the shifting of workers to industries and occupations paying lower rates of wages. A new labor-management conference, somewhat resembling the conference at which the pledge against strikes and lockouts was adopted, was proposed in August, and arrangements were completed by the Secretaries of Labor and Commerce in August and early September for the holding of such a conference in November. One of the main objectives of the conference was described as the working out of voluntary arrangements for the peaceful adjustment of industrial disptes to minimize the interruption of production in the reconversion period.

Activities of Conciliation Service of Department of Labor.—From Pearl Harbor to Aug. 1, 1945, the Conciliation Service of the Department of Labor handled 75,653 dispute situations. Of this number, 57,537 cases, or 76.1 per cent, were settled by purely voluntary processes of conciliation and arbitration. Most of the other cases, numbering 17,566, or 23.2 per cent of the total, were referred to the National War Labor Board for further action. In most of the cases certified to the board, a large number of the issues involved were settled through conciliation before certification. In addition to its conciliation functions, the Conciliation Service also handles arbitration and technical cases. In 3,757 cases the parties voluntarily agreed to the appointment of an arbitrator by the Conciliation Service. The Technical Division made 591 surveys on the joint request of the parties.

During the year ended June 30, 1945, the Conciliation Service closed 25,907 situations, affecting about 14,500,000 workers. The varied and often informal nature of the services rendered is indicated by the types of "situations" or cases handled: strikes and lockouts, controversies threatening work stoppages, other controversies, and cases not directly involving controversies.

The number of cases involving strikes and lockouts handled during the 12 months was 3,207, involving almost 2,000,000 workers. The number of these cases handled successfully by the Conciliation Service was 2,827, and the number certified to the National War Labor Board was 380. In 219 of these cases, a commissioner of conciliation effected a return-to-work agreement prior to certification to the board. Records disclose that 2,183 situations were threatened work stoppages and 17,731 were controversies in which requests were made for the assignment of conciliators to assist in the adjustment of disputes. The remaining 2,786 cases included 1,151 arbitrations in cases referred voluntarily to the Conciliation Service, 166 technical services, 322 investigations, and 1,147 requests for information, consultations, and special services. About 80 per cent of all industrial disputes during the year were settled through conciliation. The commissioners prevented work stoppages in 95 per cent of the cases which they entered before a stoppage had occurred.

The end of the war gave renewed importance to voluntary procedures in labor relations. The

change was reflected in modifications of the work of the National War Labor Board. In a statement made Aug. 16, 1945, in regard to labor policy, the president declared that in the strengthening of the Department of Labor and the unification under it of labor functions, emphasis would be placed on the upbuilding of the Conciliation Service. An important step in that direction was the transfer, on September 19, of the National War Labor Board to the Department of Labor.

Changes in Labor Administration.—The work of the Department of Labor was reduced, under the Reorganization Act of 1939, by the transfer of the United States Employment Service to the Federal Security Agency. The Employment Service was transferred in April 1942 to the newly created War Manpower Commission, to which was also transferred the section in the Department of Labor dealing with apprenticeship. During the war, a number of agencies, in addition to the War Manpower Commission, were created and given extensive labor functions. The most important of these from the point of view of labor administration was the National War Labor Board, but other agencies, such as the War Production Board and the Office of Price Administration, exercised certain labor functions. Some of the older agencies, especially the War and Navy departments, developed administrative activities in the field of labor, particularly in connection with the expansion of public contracts. (See *Labor Agencies and Functions of the United States Government*, AMERICANA ANNUAL, 1945.)

Numerous proposals were made for the strengthening of the Department of Labor. Thus, the Eleventh National Conference on Labor Legislation, in December 1944, adopted resolutions urging that all labor functions be established in the state and federal labor departments. The Secretary of Labor made recommendations in successive annual reports, and in October 1944, presented a detailed plan to the Bureau of the Budget. The president, on Aug. 16, 1945, stated that the plans of the new secretary of the Department of Labor were going forward for the strengthening of the department and for the unification under it of functions properly belonging to it. Recommendations had been made by the president, in his message to Congress of May 24 (repeated in his message of September 6), for authority to reorganize executive agencies to meet reconversion and postwar needs. Pending action by Congress, an initial step was taken by the president, in an executive order of September 19, for the transfer to the Department of Labor of certain agencies established during the war. These were the War Manpower Commission (including the Employment Service), the National War Labor Board, and the Retraining and Re-employment Administration.

See also AMERICAN FEDERATION OF LABOR; CONGRESS OF INDUSTRIAL ORGANIZATIONS; FEDERAL SECURITY AGENCY; LAW; NATIONAL LABOR RELATIONS BOARD; OFFICE OF ECONOMIC STABILIZATION; WAR MOBILIZATION AND RECONVERSION, OFFICE OF; WAGE AND HOUR REGULATION; WAR LABOR BOARD, NATIONAL; WAR MANPOWER COMMISSION; WAR PRODUCTION BOARD.

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LABOR LAW. See LAW, *Section 6.*

LABOR RELATIONS BOARD, National. See NATIONAL LABOR RELATIONS BOARD.

LABRADOR. See NEWFOUNDLAND AND LABRADOR.

LABUAN. See BRITISH MALAYA.

LADRONE ISLANDS. See JAPANESE SOUTH SEA ISLANDS.

LALIQUE, René, French jeweler and glassmaker: b. Ay, Marne, France, April 6, 1860; d. Paris, France, May 9, 1945. The influence of René Lalique on French art, jewelry and glassware was paramount for many years. Educated in Paris, Lalique showed such skill in design that he was apprenticed to a jewelry firm. After working for several of the leading Paris jewelers, he became a free-lance designer at the age of 30. His work created a sensation at the Paris Universal Exposition in 1900, where he exhibited jewelry designs which introduced the idea that emphasis should be placed not only on the jewel itself, but also on the appropriate arrangement of the whole setting, with such materials as translucid enamels, ivory, and horn being used. Later he experimented with glass design and introduced a variety of colors and shapes in his products, which ranged widely in subject, from radiator caps to crucifixes. At the invitation of the French government, an exhibition of his work was given in the Pavillon de Marsan of the Louvre in 1933, and his glass decorations were used in the dining hall of the transatlantic liner, *Normandie.* Lalique was a commander of the Legion of Honor, and a member of the Superior Council of Beaux-Arts.

LAMBS. The Department of Agriculture estimated the 1945 lamb crop of the United States at 28,250,000 head. This figure compares with the 1944 crop of 29,248,000 head and the 1934–43 ten-year average crop of 30,589,000 head. Texas leads in production with 5,284,000 lambs in 1945, followed by Montana with 1,924,000, and Wyoming with 1,918,000.

LANDS, Public. See PUBLIC LANDS.

LANG, Cosmo Gordon (1ST BARON LANG OF LAMBETH), British ecclesiastic: b. Aberdeenshire, Scotland, Oct. 31, 1864; d. Richmond, Surrey, England, Dec. 5, 1945. Archbishop of York from 1908 to 1928, and then archbishop of Canterbury from 1928 to 1942, Lord Lang, together with the former British prime minister, Stanley Baldwin, was the leader of the forces that brought about the abdication in 1936 of King Edward VIII, now duke of Windsor, because of his wish to marry the American divorcee, Mrs. Wallis Warfield Simpson.

Lord Lang received his M.A. degree at the age of 18 from Glasgow University, after which he won a scholarship and went to Balliol College, Oxford. He was elected a fellow of All Souls College in 1889. Intending to enter a political career, he studied law at the Inner Temple, London, until 1889, when, according to one story, he was converted to the church the night before his bar examinations, telegraphed his excuses to his law examiners, and almost immediately departed for a theological seminary. Ordained a minister of the Church of England in 1890, he served for three years as curate of the parish church of Leeds, then in 1893 returned to Oxford to become a fellow and dean of divinity at Magdalen College. The next year he was appointed vicar of St. Mary's Church at Oxford, also known as University Church. He left Oxford in 1896 to become vicar of Portesa, the largest parish in

England, where his preaching attracted the attention of Queen Victoria, who appointed him one of her honorary chaplains. In 1901 he became suffragan bishop of Stepney, London's East End diocese, and canon of St. Paul's Cathedral in London. Eight years later, after he had been made archbishop of York, he was appointed privy councillor and a member of the Royal Commission on Divorce. In the spring of 1918, he visited the United States and Canada for the first and only time.

Lord Lang succeeded Randall Thomas Davidson as archbishop of Canterbury and primate of all England in 1928, and took a leading part in support of the Prayer Book measure in Parliament. Five years later he was made lord high almoner to the king. Shortly after the abdication of King Edward, Lord Lang rebuked him publicly "for having sought his happiness in a manner inconsistent with the Christian principles of marriage and within a circle whose standards and ways of life are alien to all the best instincts and traditions of his people." It was also he who refused to allow any form of Church of England service at the duke's wedding. The high point of Lord Lang's career came when he presided at the coronation of King George VI and Queen Elizabeth at Westminster Abbey in May 1937. One of his last official duties was to confirm Princess Elizabeth in March 1942. That same month he retired as archbishop of Canterbury and shortly thereafter he received a barony.

LANGUAGE. See PHILOLOGY.

LAOS. See FRENCH INDO-CHINA.

LARSON, Emery Ellsworth, United States Marine Corps officer: b. Monticello, Minn., 1899?; d. Atlanta, Ga., Nov. 7, 1945. Head football coach at the United States Naval Academy from 1938 until 1941, Colonel "Swede" Larson coached Navy teams that in three years defeated West Point 10–0, 14–0, and 14–6, and their record for the three seasons showed 16 victories against 8 losses and 3 ties.

Colonel Larson enlisted in the Marine Corps in 1917 and was discharged in June 1918 to become a midshipman. During the three years he played football at Annapolis, the Navy team never lost a game to Army. He was captain of the team in 1921, when he was chosen center on Walter Camp's second All-America team. Upon graduation in 1922, he received the Thompson Trophy as Navy's outstanding athlete. Commissioned second lieutenant in the marines, he played with the All-Marine team at Quantico, Va., for three years, and then coached and played with the Parris Island (S.C.) marines. In 1927 he coached the All-Navy team in Hawaii, and the following season, during his spare time, he was line coach at the University of Hawaii. After two years in Nicaragua, he returned to Parris Island as football coach in 1931. He led the U.S.S. *Pennsylvania* team to the fleet championships in 1935 and 1936, and coached the 6th Marines in Shanghai in 1937. During the Second World War, he was sent to the Aleutians to help meet the Japanese invasion threat, and then led his regiment into the South Pacific for action at Tarawa, Kwajalein, and in the Marshall Islands. In February 1944 he was ordered to Marine Corps headquarters in Washington, D.C.

LASKI, Harold Joséph. British political economist, historian, and author: b. Manchester, June 30, 1893. From Manchester Grammar School he went to New College, Oxford University, where he took a first class in the Honour School of Modern History in 1914. Already attracted to the labour movement, he wrote editorials for the London *Daily Herald,* and, not accepted for military service in the First World War, he went to Canada in the fall of 1914 to become lecturer in history at McGill University. In 1916 he transferred to a like post at Harvard, and during the four years he was there he was also Henry Ward Beecher lecturer at Amherst College, 1917, and Harvard lecturer at Yale University, 1919–20. Returning to Britain in 1920, he joined the faculty of the School of Economics and Political Science, London University; was appointed professor of political science in 1926, and meanwhile, as an active figure in the Fabian Society, he had become one of Britain's leading interpreters of socialism. During 1922–25 he lectured on political science at Magdalene College, Cambridge University; he returned to Yale as visiting professor in 1931, and as Storrs Lecturer two years later; he went to Moscow in 1934 to lecture at the Institute of Soviet Law; and he was Donnellun Lecturer at Trinity College, Dublin, in 1936. In 1926 he was named a member of the Industrial Court, and subsequently he served on several other official and semi-official bodies. He had joined the Labour Party in 1920, and soon he became identified with its left wing. Believing that capitalism was doomed, he asserted that the peaceful acceptance of socialism was the only alternative to revolution. During the Second World War he was given no post in the coalition administration formed by Prime Minister Winston Churchill, but nevertheless he exerted great influence in the formulation of the Labour Party's policy and development of its legislative program. In January 1944 he was elected vice chairman of the party's national executive committee, and in May of the following year he succeeded Ellen Wilkinson as chairman. He sought no parliamentary seat in the general election of July 1945, but after the Labour Party had been returned to office he continued to be one of its most powerful figures. From 1920 he was a regular contributor to *The Nation,* a liberal weekly published in London, and he wrote a large number of works, which include: *The Problem of Sovereignty* (1917); *Authority in the Modern State* (1919); *Communism* (1927); *Democracy in Crisis* (1933); *Parliamentary Government in England* (1938); *The American Presidency* (1940); *The Danger of Being a Gentleman* (1940); *Where Do We Go From Here?* (1940); *The Strategy of Freedom* (1941); *Marx and Today* (1943); *London-Washington-Moscow: Partners in Peace?* (1943); *Faith, Reason, and Civilization* (1944); *Will Planning Restrict Freedom?* (1944).

LATIN AMERICAN AFFAIRS. See INTER-AMERICAN AFFAIRS; PAN AMERICAN AFFAIRS; WORLD POLITICS.

LATIN AMERICAN ART. The years 1944–45 were marked by an intensification of art activities in the Latin American countries, manifested by the creation of more than twelve new art salons and societies. An expanding program of exchange exhibitions between the various countries gave greatly enlarged audiences to national groups. A revival of interest in the 19th century masters was felt in retrospective shows held in several of the major art centers.

In 1944 Mexico showed a large exhibition of the work of Toulouse Lautrec, the French impressionist painter, at the Palace of Fine Arts. The collection had been sent to Mexico by the

Art Institute of Chicago in exchange for a group of prints by the 19th century Mexican engraver, José Guadalupe Posada. The Posada collection, after opening at the Art Institute, circulated among North American museums, as did an exhibition of the 19th century Mexican landscape painter, José María Velasco, brought to this country by the Philadelphia and Brooklyn museums.

The Palace of Fine Arts continued its interest in the 19th century by showing in 1945 an exhibition of the work of Joaquín Clausell, whose impressionist technique formed a marked contrast to the finely detailed work of his contemporary, Velasco.

José Clemente Orozco, his murals in the Hospital de Jesús completed, held exhibitions of his new work in 1944 and 1945 in the Colegio Nacional. Dr. Atl (Gerardo Murillo) held a retrospective one-man show in 1944 which re-established his importance in the history of modern Mexican art.

The Society of Modern Art, founded in 1944, opened its doors with a loan exhibition of the work of Pablo Picasso, assembled with the help of the Museum of Modern Art in New York. The gallery followed the showing in 1945 with an exhibition of Mexican masks, directed by Miguel Covarrubias; and with a showing of photographs by Manuel Alvarez Bravo, the sensitive interpreter of Mexico's inner spirit.

David Alfaro Siqueiros returned to Mexico from Cuba in 1944 and opened his Center of Realistic Modern Art, a workshop and school in which he painted a mural which combined the use of sculpture by Luis Arenal and of a circular stairway which formed an integral part of the composition. The artist painted a second mural in the Palace of Fine Arts in 1945, on the long wall situated between the murals of Diego Rivera and Orozco, thus reuniting in the Palace the three great spirits of the Mexican revolution in art.

Two important books on art were published in Mexico in 1945: the first, *No hay mas ruta que la nuestra,* by Siqueiros, brings together many of his articles and manifestoes which were published separately in 1944 and 1945 in various Mexican magazines. The new book, *Prometeo,* by Justino Fernández presents a survey of modern art movements with an attempt to evaluate the importance of the Mexican movement in relation to international contemporary art.

In Argentina the National Museum of Fine Arts celebrated its 50th anniversary in July 1945. The museum had been closed for some time in order to modernize and rearrange its collection of more than 4,000 works of art. The National Art Library was transferred to the museum building, bringing with it some 12,000 volumes. In November of 1944 the museum presented a large retrospective exhibition of the work of Cesáreo Bernaldo de Quirós, Argentina's painter of the 19th century gaucho.

The Association of Argentine Artists celebrated its 17th anniversary in 1945. The National Salon in Buenos Aires awarded in 1944 its Grand Painting Prize to Alfredo Guido; its Grand Sculpture Prize to Horacio Juárez. Juan C. Castagnino won the First Drawing Prize in the Salon of Watercolorists and Graphic Artists, as well as the Second National Prize in the National Salon of 1944.

Of international interest was the exhibition of Gothic and Renaissance art in 1944. Gathered together for the benefit of the Association for the Fight Against Infantile Paralysis, the collection was unusual not only for its excellent quality, but also because all of the 180 pieces came from collections in Buenos Aires, some exhibited publicly for the first time. The Museum of Santa Fé presented a handsome exhibition of "100 Years of Painting in Santa Fé," followed in 1945 by an exhibition of the gaucho paintings of Bernaldo de Quirós.

The more than 250 exhibitions listed in Buenos Aires for the year 1944 included personal exhibitions by many of Argentina's leading artists, as well as works of art from Mexico, Uruguay, Brazil, Cuba, and the United States. Argentina's publishing houses continued their presentation of the best of the contemporary artists in monograph form. José León Pagano published in 1944 his *Historia del arte argentino* and Julio Payró presented 22 *Pintores,* with unusually fine color plates of the work of Argentina's modern artists.

Bolivia came forward with an intensification of her artistic life which included the creation of a Municipal Council of Culture in La Paz; the reorganization of the Department of Culture of the Ministry of Education and Fine Arts; the establishment of the First National Salon of Fine Arts and the organization of the Union of Plastic Artists. Four of her artists were given foreign scholarships for study in the United States, and nine artists held one-man shows in 1944.

Chile held the First Salon of the Association of Painters and Sculptors in 1944; and in 1945 inaugurated the Institute of Plastic Arts of the University of Chile, founded for the encouragement of Chilean artistic endeavor. Activities in 1944 included the Week of Art, in which Pablo Burchard was awarded the National Art Prize. An exhibition, "Homage to France," showed paintings done in that country by Chilean artists. Santiago had probably the greatest number of individual exhibitions in her history, more than forty being listed. Chilean artists exhibited their work in traveling shows in Uruguay and Brazil.

Uruguay inaugurated its First Municipal Salon for Foreign Artists with more than 150 works; the First Salon of National Graphic Artists was organized by a group founded under the title of Association of Uruguayan Graphic Artists; and 1945 saw the founding of the Syndicate of Plastic Artists of Uruguay, with Bernabé Michelena, the sculptor, as its president. An exhibition so large it had to be held in three parts showed the work of Pedro Figari, Uruguay's master of 19th century creole life. Joaquín Torres García won the Grand Painting Prize in the National Salon of 1944 and in the same year published his profusely illustrated magnum opus, *Universalismo constructivo,* in which he set forth the art philosophy which has been the storm center of Montevideo for the past few years.

Venezuela's prizes in the Official Salon of 1944 went to Pedro León Castro in painting and Germán Cabrera in sculpture. The Dominican Republic celebrated its first centenary with a National Exhibition of Plastic Arts in 1944, and in 1945 three of the younger Dominican artists held an exhibition of their work in Mexico City. Ecuador founded its First National Salon in Quito in May of 1945, awarding the Grand Painting Prize to Diógenes Paredes, the Grand Sculpture Prize to Jaime Andrade. The work of the Ecuadorian artists was shown in Venezuela. Haiti stepped into the international field with the foundation in 1944 of a Centre d'Art, organized by the young American artist, DeWitt Peters. The centre has undertaken an active program of exhibitions, classes, lectures and publications.

The Cubans held group exhibitions in Haiti, Argentina and Guatemala. The Museum of Modern Art in New York held a large exhibition of the younger artists in 1944, which was subsequently circulated throughout the United States. The national salons awarded prizes to Jorge Arche, María Capdevila, Rita Longa and Teodoro Ramos Blanco. A group of Cuba's more rebellious artists visited the United States and held one-man shows in New York and San Francisco, in protest against the over-academic tendencies of official Cuban art.

Brazilian painting was shown in Argentina at the Museum of La Plata. A second exhibition circulated in Chile and Peru. One hundred and twenty Brazilian paintings, after a showing in Rio in 1943, went to London where they were exhibited at the Royal Academy, for the benefiit of the Royal Air Force. A group of ten of the pictures was withheld to form the nucleus of a future museum of Brazilian art in London. Count August Zamoyski, Polish sculptor for many years resident in Paris, became in 1944 the director of the University of Rio's Free Course in Sculpture, a workshop and co-operative atelier which earned more than $1,000 in the first year of its existence. José María Dos Preis, Jr., published in 1944 his definitive *Historia da pintura no Brazil* with 312 illustrations, and Sergio Milliet presented *Pintura quase sempre,* an attempt at international art criticism.

Peru held a large exhibition of the work of Pancho Fierro, the delightful interpreter of 19th century Peruvian life. Cossio del Pomar, Peruvian artist and author, published in Mexico in 1945 his *La rebelion de los pintores,* which seeks to prove that social causes lie beneath all great artistic revolutions.

The publication within the last few years of books which treat Latin American art as an integral part of the international movement, the programs of exchange exhibitions between the various countries, and the emergence of new syndicates and unions of artists in rebellion against the *indigenista* or reactionary academies, seem to indicate a healthy tendency for Latin America today to take her place in the world of art, transcending a purely nationalist point of view in favor of a universal art language.

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LATIN AMERICAN LITERATURE. Perhaps the most appreciable literary contribution of 1945 belongs in the nonfiction category. From the astounding number of biographies and essays a few may be singled out for their intrinsic merit: the *Anatole France* of Luis Reissig, the *Introducción al teatro de Sófocles* of María Rosa Lida, the *Eça de Queiroz* of Vianna Moog, all published in Buenos Aires. The Argentines paid considerable attention to their national figures: there were a warm, well-balanced and inspired biography of *San Martín* by B. González Arrili and a *Cronología de San Martín* by C. Galván Moreno; Carlos Alberto Leumann achieved a superb analysis of the second part of *Martín Fierro* by studying exhaustively six MS. notebooks left by its creator, José Hernández, and Martín Manso completed a very useful dictionary, *Las voces de Martín Fierro.* In celebration of the centenary of *Facundo* (1845) Sarmiento attracted many scholars and politically-minded writers: Alberto Palcos' *El Facundo* elucidated brilliantly the style and contents of that epoch-making book and dealt with the corrections and modifications suggested by Valentín Alsina; Manuel Gálvez' *Vida de Sarmiento* was a Nazified attack upon Sarmiento's democratic activities: Gálvez claimed that Sarmiento was a second-rate writer, a wretched educator, an inept president. On the occasion of the 100th anniversary of the death of Bernardino Rivadavia (1780–1845), the poet Arturo Capdevila edited, with an introduction, passages from the writings of this great humanist and leader. Capdevila published also *Tiempos y poetas,* dealing with the publicist and educator Alfredo L. Palacios, and five poets: Carlos Guido Spano, Olegario V. Andrade, Rafael Obligado, Joaquín Castellanos and "Almafuerte" as well as the travelogue *Tierra mía,* describing in a most evocative manner the paths and bypaths of his native province of Buenos Aires. Félix Esteban Cichero studied several leading poets, including Hernández and Alfredo R. Bufano in his *Vida esencias.* Bold and especially timely for his own country was Arturo Orgaz' attack on dictatorships, *El espíritu autoritario,* published by the University of Córdoba. The well-documented *Los Capitales alemanes en la Argentina* by Luis V. Sommi, presented a disturbing picture of Nazi penetration in Argentina. Diodoro Roca's *Las obras y los días,* which contains magnificent passages from the writings of this distinguished writer, was unanimously acclaimed as one of the highlights of 1945. Finally, in *El compadrito,* Sylvina Bullrich Palenque and Jorge Luis Borges culled selections in prose and verse from Argentine literature describing a national type, as picturesque as the gaucho—the boastful, bad hombre of the small towns.

From Colombia Jorge Ricardo Vejarano presented a full-length portrait of Nariño in his biography by that title. The Bolivian Augusto Guzmán recounted in an exciting novel form, *Tupaj Katari,* the 18th century Indian uprising and siege of La Paz under the leadership of José Julián Apasa, "Tupaj Katari." Alfonso Crespo dealt with Santa Cruz in *Santa Cruz, el cóndor indio* and Leopoldo Benítez dramatized in his extremely readable *Argonautas de la selva* the jungle adventures of Francisco Orellana, the founder of Guayaquil. The works of Guzmán, Crespo and Benítez form part of the promising series "Tierra Firme" (Mexico City) which comprises also a synthetic study of Colombian literature, *Letras colombianas,* by the veteran B. Sanín Cano; a specialized history of 19th century Mexican literature, *Letras mexicanas en el siglo XIX,* by J. Jiménez Rueda; a panorama of Spanish American culture during the colonial period, *De la Conquista a la Independencia,* by the Venezuelan Mariano Picón-Salas; Arthur Ramos' *Las poblaciones del Brasil,* a keen summarization of Brazilian ethnography; the remarkable *Ruta cultural del Perú* by Luis E. Valcárcel; *Del ensayo americano,* a rather diffuse study of the essay and its content by the Cuban Medardo Vitier; and, finally, Gilberto Freyre's *Interpretación del Brasil,* the Spanish version of *Brazil: An Interpretation,* recently published in New York. The Colegio de Mexico came out with *Apogeo y decadencia del positivismo en México* in which the brilliant Leopoldo Zea rounds out his pithy study of Mexican Positivism. Brazilian contributions included a biographical sketch of Nina Rodrigues, pioneer of Afro-Brazilian studies, *A atualidade de Nina Rodrigues,* by Augusto Lins e Silva; two interesting monographs by Nelson Werneck Sodré: *Formação da sociedade*

brasileira, and *O que se debe ler para conhecer o Brasil.* Phocion Serpa's exhaustive biography of Dr. Oswaldo Cruz has been translated into Spanish as *Oswaldo Cruz el Pasteur de Brasil, vencedor de la fiebre amarilla.*

In the field of poetry the most exciting news of the year was the awarding of Chile's Premio Nacional to Pablo Neruda who, despite his difficult utterance and revolutionary content, has gradually been recognized as one of Latin America's greatest poets. The most important poem of the year was probably *Requiem,* by the Chilean Humberto Díaz Casanueva, an elegy at his mother's death, whose deeply felt sentiment voiced in sober and pristine language is to us what *Adonais* was to Shelley's contemporaries. Other outstanding achievements were: the beautiful sonnets of the veteran Pedro Prado, *Esta bella ciudad envenenada;* the fantasies of Jacobo Danke *La taberna del perro que llora,* so evocative of Lord Dunsany's misty world; and the very simple human, sweet poems of Rafael Coronel, *Con los Párpados cerrados.* Brazil discovered an original, realistic poet in Cid Silveira's *Poesias,* and Lucio Cardoso's *Novas Poesias* received warm praise. Among the anthologies: *Ternura,* containing all that Gabriela Mistral has written about children, and an *Antología* of the poetical works of Vicente Huidobro, edited by Eduardo Anguita. With the awarding of the Nobel Prize for Literature to Mistral, Latin American Literature is at long last officially recognized by the world.

Fiction as a whole fared badly: among the work of recognized writers Eduardo Barrios' *Tamarugal* was disappointing; *Donde nace el alba* did not add a cubit to Nicomedes Guzmán; and Francisco Rojas González' *La negra Angustias,* despite some moving and extraordinary episodes, was weak as a novel. Deserving special attention were Isidoro Sagüés' *Mal de ciudad,* dealing with urban life; Leonidas Barletta's melancholy stories of the underprivileged, *La felicidad gris;* some of the short stories in *Dios en la tierra* and *La sombra de las cumbres,* the former by the Mexican José Revueltas, the latter by the Chilean Oscar Castro. Promise was shown by María de Clarés in her first novel *Cuando el agua es clara* and by Nicasio Tangol in a novel dealing with his native Chiloé, *Huipampa, tierra de sonámbulos.* Also dealing with strange regions and characters and containing some distinguished writing were Dinka de Villaroel's *Norte adentro,* and Rafael Fernández Rodríguez' *Tierras de Pedro Ramírez,* reflecting the life of miners, fishermen, witches and peasants of Colchagua. The noisiest literary "sensation" of 1945 was *Avenida San Juan No. 124* by Gregorio Amunátegui, well-known politician and member of the Chilean Senate. His mediocre *roman à clef* brought to the forefront the more prominent members of the social elite of Santiago.

Outstanding United States writers appeared in Spanish translation (T. S. Eliot's *The Wasteland,* etc.) in the remarkable two-volume *Antología de Escritores Contemporáneos de los Estados Unidos;* also worth noticing are Argentine translations of Melville's *Moby Dick* (*La ballena blanca*) and Erskine Caldwell's *Jackpot.*

Latin American contributions recently made available in English include three "classics": the romantic novel *Inocencia* by the Brazilian Alfredo d'Escragnolle Taunay; stories by the Peruvian Ricardo Palma, *The Knights of the Cape;* and a biography of San Martín by the Argentine Ricardo Rojas; two contemporary novels: the remarkable *Violent Land* of the Brazilian Jorge Amado and the unconvincing *Bewitched Lands* of the Bolivian Adolfo Costa du Rels; an anthology, *The Green Continent,* edited by the Colombian Germán Arciniegas, calculated to present Latin America as seen through the eyes of Latin American writers; two illuminating literary histories: Erico Verissimo's *Brazilian Literature* and Pedro Henríquez Ureña's *Literary Currents in Hispanic America;* and, finally, a brief but extremely searching *Brazil: An Interpretation* by the social anthropologist Gilberto Freyre.

Among the losses of the year perhaps the most regrettable was that of the poet, novelist and music critic Mario de Andrade, whose death on Feb. 25, 1945, at the age of 52, deprived Brazil of one of its most dynamic cultural figures.

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LATIN AMERICAN MUSIC. Information upon concert music activity in Latin America is still relatively spotty. Except through sound-recordings of Zoque, Tzotzil, Chiapaneco and Tojolobal Indians made under the auspices of the Inter-American Indian Institute in Mexico City by Henrietta Yurchenco, little, apparently, was added during the year to our knowledge of the primitive music of those areas of the new world where romance languages are the official tongue.

Collection, study, utilization and organization have made notable progress in the field of folk music (which may be European in tradition, or European mixed with indigenous and/or African traditions). Nearly every country has recognized in this idiom certain elements suitable for use as nationalistic propaganda. Composers, critics, educators and even performers have either joined the band-wagon of "folclorismo," or started it rolling, although in most countries there is little basis for it in fact. Apart from Brazil, where the Portuguese language accounts for a music regionalism more or less coinciding with the national boundaries, and Mexico, where over 30 years of deliberate cultivation by the revolution have highlighted and, perhaps, influenced the mixture of native Indian and imported European music traditions in a manner peculiar to the country, Latin American folk music is almost as international as the Spanish language. Songs and dances characteristic of distinct localities, and of geographically defined regions such as the Andean highlands or Pacific coastal strip, show variations in the overall patterns that are often claimed as "national." But these spread beyond national boundaries, as a rule. Thus two music variants of a theme from two countries may differ less than two found within one and the same country or even city.

In the field of fine-art music (variously referred to as academic, erudite, serious or simply "art" music), activity has continued to increase, both in quantity and in quality. The controversy between nationalism and cosmopolitanism is still a draw in which the question "folklorism or anti-folklorism?" is the crucial factor. An emerging problem is found in the relative roles of government, individual creative power and collective organization. Governments control conservatories, orchestras and opera houses, and, through prizes and grants of funds, hold the whip hand in most countries. Where, as in Mexico, professional organization has assumed clear-cut leadership, in Brazil it is the dominating personality of Heitor Villa-Lobos—composer, conductor and music educator—which seems to do

so. Co-operation of the government has resulted in both countries. In Argentina, on the other hand, most of the brilliant musicians have held aloof from, or even been at odds with, the government. Juan José Castro, perhaps the outstanding musician of the country, was deprived of all his government positions—first conductor of the Colón Opera and professor in the national conservatory—because he signed in 1943 the famous manifesto "Effective Democracy and American Solidarity." In collaboration with the APO (Associación del Profesorado Orquestal de Protección, Argentine counterpart of the Musicians' Union of the United States), he has been conducting a philharmonic orchestra, reportedly one of the best in the hemisphere.

Popular music has continued to be the most successful music activity in this part of the world. Hybridization of popular music of all four Americas—South, Central, North and Antilles—seems to be increasing rather than decreasing, in spite of the parades of the band wagon of nationalism. This results from, but in turn leads to, increased exchange of artistic talent through broadcasting, cinema, phonograph recording. Problems of copyright, performance right and concert management still hamper these international efforts. Owing to the intervening of several more basic international conferences, the proposed Inter-American Conference of Experts on the Protection of Intellectual Property was not held. FISAC (Inter-American Federation of Societies of Authors and Composers) held its first congress in Havana Jan. 16–20, 1945, attended by some of the societies which had threatened to form an opposition in Rio de Janeiro under the leadership of SADAIC (Argentine Society of Authors and Composers). United States ASCAP (American Society of Composers, Authors and Publishers) joined FISAC, whose constitution did not allow adherence of BMI (Broadcast Music, Incorporated) or UBC (Brazilian Union of Composers). SADAIC remained aloof. New societies have been formed during the year in Bolivia (SOBODAICOM), Peru (SPAC) and Uruguay. Efforts are being made to unify the four Cuban societies. Several countries contain no fee-collection agency or one in name only.

The hemisphere difficulty is that Latin American societies are societies of authors, whereas United States societies (excepting ACA—American Composers' Alliance) include publishers or are company owned.

Inter-American exchange of artists continued upon about the same level in 1945 as during the preceding year, with about the same names. Carlos Chávez resigned from the Mexican Symphony Orchestra but remained as artistic director. Heitor Villa-Lobos spent about four months in Los Angeles and New York, conducting a number of orchestras. Other Latin American composers visiting the United States were Ary Barroso of Brazil, José Velasco Maidana of Bolivia and Ernesto Lecuona of Cuba. Camargo Guarnieri visited Argentina and Chile—Hector Tosar Errecart of Uruguay spent some time in Brazil. On the whole, exchange of visits of musicians was unusually active in the southernmost countries of South America, including Brazil, Chile and Peru. Columbia Concerts, Inc., has embarked upon promotion of its community concerts project upon an inter-American scale, employing Latin American as well as United States artists. The field representative is Myron Schaeffer, formerly of the University of Panama.

Since V-E and V-J Days, publication prospects have brightened. Outstanding new works of the year were Carlos Vega's *Panorama de la música popular argentina* (Losada); Gilbert Chase's *A Guide to Latin American Music* (Library of Congress, Washington, D.C.); Nicolas Slonimsky's *Music of Latin America* (Crowell); José Ignacio Perdomo Escobar's *Historia de la música en Colombia* (Biblioteca Popular de Cultura Colombiana); Vanett Lawler's *Music Education in 14 American Republics* (Pan American Union). Francisco Curt Lange has continued, in Rio de Janeiro, publication of Volume VI of the *Boletín Latino-Americano de Música*. He has unearthed a lot of new material on Louis Moreau Gottschalk and a large quantity of colonial music in the state of Minas Gerais, Brazil. Alejo Carpentier has done the same in Santiago de Cuba.

New music magazines appeared as follows: *Brasil Musical* (Rio de Janeiro, March); *Revista Musical Chilena* (Santiago, May), *Vida Musical* also of Chile (Santiago, July).

Interest in the Reichhold Music Award of $25,000 has overshadowed the numerous prizes customarily offered for musical compositions. Owing to protests received by Karl Krueger, United States conductor, during his tour of South America, the rules were drastically altered and the date advanced from July 1945 to March 1946. Announcement was made by the Pan American Union that entries for the international phase of the American Student Song Contest for 1945 would be received as of September 30 until December 31.

Necrology.—Mario de Andrade (b. 1893), Brazilian philosopher, poet, folklorist and musicologist; Francisco Braga (b. 1868), the grand old man of Brazilian music; José Rolón, Mexican composer (b. 1883); Moises Simons, Cuban composer of light opera (b. 1890).

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LATTER DAY SAINTS. See MORMONS; REORGANIZED CHURCH OF JESUS CHRIST.

LATVIA. A state on the eastern side of the Baltic Sea, extending south and east of the Gulf of Riga, bounded on the north by Estonia, on the south by Lithuania, and on the east by the Russian and White Russian Soviet Republics. Latvia, which had been under an authoritarian regime since 1934, and increasingly subject to German influence, signed in October 1939 a ten-year mutual assistance pact with the Soviet Union, the provisions of which included Soviet military occupation of certain strategic points. In May 1940, following a sharp Soviet warning, the authoritarian and anti-Soviet government of Latvia was ousted by a democratic-left opposition, and Soviet forces occupied the country. A revived Latvian *Saeima* (parliament), reportedly based on universal, direct, secret balloting, asked for Latvia's admission to the USSR, and on Aug. 5, 1940, Latvia became the Soviet Union's 15th constituent republic. In the summer of 1945, however, its status as such was still not recognized by the United States or Great Britain. Occupied by the Germans in June 1941, most of the territory of Latvia was freed from the German occupation by the Red armies in July and August 1944.

Latvia has an area of 25,395 square miles and in 1940 had a population of 1,950,000. In 1935, 77 per cent of the citizens of Latvia were Letts and 11.91 per cent were Russians. Riga (pop. 393,211) is the capital, other important

centers being Liepāja, (Lepaya, Libau, 57,098), Daugavpils (Dünaburg, Dvinsk, 45,160), Jelgava (Mitau, Mitava, 34,099), and Ventspils (Windau, 15,671). Prior to the German invasion there were 1,895 elementary schools with 229,825 pupils, 114 secondary schools with 25,225 pupils, a university, with 7,281 students, and a number of technical and professional schools. The budget for 1941 was estimated at 894,000,000 rubles. Principal crops, in metric tons, for 1938, were: rye, 378,690; barley, 220,570; oats, 446,620; wheat, 191,920; potatoes, 1,751,360; flax, 21,460; and linseed, 20,390. In December 1938 there were 5,977 factories, with 98,497 operatives. Total production was valued at 699,100,000 lats (lat = $.1930 in U.S. currency. Livestock in 1939 included 414,470 horses, 1,271,730 cattle, 1,469,570 sheep, 891,470 pigs, 4,729,120 head of poultry, and 222,460 hives of bees. Trade in 1938 showed imports valued at 227,336,000 lats, and exports of 227,204,000 lats. Timber, flax, plywood, and butter were the chief exports.

At the third session of the Supreme Soviet of the Latvian SSR, reported in October, 1944, as having been held at Daugavpils, primary consideration was given to the restoration of Latvian agriculture, to which the Germans had done great damage, confiscating land, cattle, and crops, carrying off 60 per cent of the sheep, destroying a fourth of the farm buildings, and forcing the Latvian peasants to work for landowners approved by the Nazis. The session adopted a law restoring the confiscated land to the peasants, and granted each farmstead a loan of 10,000 rubles, repayable in seven years. Laws were also passed providing for the formation of commissariats of defense and of foreign affairs for Soviet Latvia.

By December 1944, 25,700 farm families were reported to have received allotments of land; the city of Daugavpils, which like almost all Latvian towns, had been destroyed, was being rapidly rebuilt, and some of its factories reopened for production, and classes resumed at the State Agricultural Academy. During the first quarter of 1945 postal services were fully restored, with 535 post offices in operation, and newspapers and periodicals were appearing in the Latvian language. Dormitories and dining rooms had been set up in connection with 42 schools to care for children from distant villages. In April an extraordinary state committee reported that the Germans, in the course of their attempt to establish control over Latvia, in addition to wrecking the country's agricultural, industrial, and cultural institutions, had exterminated 250,000 civilians and 327,000 war prisoners, and had driven 175,000 Latvians into slavery. The liberation of Latvia from the Nazis was completed in May 1945 with the surrender of two German armies which until that time had continued to hold the Kurland district.

LAVAL, Pierre, French politician: b. Châteldon, Puy-de-Dôme, France, June 28, 1883; d. Oct. 15, 1945. Member of the Vichy triumvirate which ruled France under German domination, Pierre Laval, who had three times been premier of France, was condemned to death on Oct. 9, 1945, after trial by the French High Court of Justice, which convicted him on a double count of plotting against the state and having intelligence with the enemy. He died before a firing squad on the morning of October 15, shortly after having made an unsuccessful attempt at suicide by poisoning.

Long a prominent figure in national and international politics, Laval was named foreign minister and vice premier in the Pétain government after the collapse of France in 1940. He was relieved of these posts in December 1940, charged with plotting to gain additional power in the government, and was detained under guard until Otto Abetz, Nazi delegate, appeared in occupied France. Throughout 1941, Laval remained in the background, continuing, however, to scheme for closer collaboration with Germany. During this period, at least one attempt was made on his life. He was reinstated in the government in April 1942, with his appointment as premier, and was given full government control through Marshal Pétain. Thereafter, he followed a thoroughly pro-Nazi policy, keeping alive the anti-Soviet crusade and giving full support to the deportation of French labor to Germany. In November 1942, he was given dictatorial powers by Pétain. Laval fled to Germany in August 1944, just a few days before French and American troops occupied Paris. On May 2, 1945, he was flown in a German plane to Barcelona, where he was interned by the Spanish government. He was taken by air to Linz, Austria, on July 31, and surrendered to American troops. The following day, he reached Paris where he was imprisoned to await trial for treason. On August 3–4, he testified at the trial of Marshal Pétain, speaking in his defense. Laval entered French politics in 1914 as a Socialist member of the Chamber of Deputies; he became a senator in 1926. He was general secretary of the "presidence du conseil" and of the Ministry of Foreign Affairs (the equivalent of undersecretary of state) in the Briand Cabinet, November 1925–March 1926. He was minister of public works, April–October 1925; minister of justice, March–July 1926; minister of labor, March–December 1930; and foreign minister, October 1934–May 1935. He served his first term as prime minister from January 1931 to February 1932; his second, from June 1935 to January 1936. Laval's influence was strongly felt in both French and European politics. In the domestic field, he used the policy of deflation in an effort to relieve France's financial situation in 1935. In January of that year, he negotiated with Italy for a Franco-Italian agreement, and in February, took part in the London disarmament conference. In the Italo-Abyssinian conflict, he teamed with British Sir Samuel Hoare, and opposed sanctions against Italy. In 1931, he visited the United States for discussion of French war debts.

LAW. In 1945 the world laid down the sword but did not put its shoulder very effectively to the wheel of peace. It was a transition year. War was ending and peace was coming. Everyone's thoughts were intent on ending the war and beginning the peace. The problem of winning the war was solved, but the equations for solving the peace were still unstated.

Developments in law reflected this condition. There were few vital changes in fundamental peacetime law. The adoption of the federal code of criminal procedure was the principal event. In the field of human relations, however, there were many court decisions and legislative acts of significance. The rights, privileges —and to a lesser extent—the duties of labor, occupied much of the time of the courts and the legislators; and there was considerable indication that courts and people were beginning to be concerned over the question whether race

relations are a cancer or merely a removable tumor in the American body politic.

This year's developments in law will be classified under twelve heads.

(1) Administrative Law.—The war agencies were on the way out during 1945, but many administrative boards and commissions will survive; and there were some noteworthy decisions and rulings.

On June 15 the Supreme Court of the United States defined the relative jurisdiction of administrative agencies and courts with reference to the judicial review of administrative orders. A fraternal benefit association had transferred its radio station. While the application for approval was pending before the Federal Communications Commission (FCC), a member of the association filed suit in a state court to set aside the lease on the ground of fraud. The FCC went ahead and approved the transaction, and the association then claimed that the courts had no further jurisdiction in the matter. A state court canceled the lease, but made no ruling upon the accompanying license to operate the station. (AMERICANA ANNUAL, 1945, p. 415.) On certiorari the federal Supreme Court on June 18 reversed the state court's decision, notwithstanding the pendency of an accounting under the state court's decree, and directed the state court to withhold execution of the retransfer order pending FCC ruling upon the license. *Radio Station WOW, Inc.* v. *Johnson*, 89 L. ed. Adv. Op. 1397, 65 S. C. Rep. 1475, 13 L. W. 4568. In October, the Nebraska court interpreted the Supreme Court's decision as being merely advisory and refused to modify its own decree.

On June 11 the court set aside Interstate Commerce Commission (ICC) orders authorizing intrastate passenger rates higher than the limits set by a state commission. *No. Car.* v. *U.S.*, 89 L. ed. Adv. Op. 1287, 65 S. C. Rep. 1260, 13 L. W. 4522.

On June 4 it construed an Office of Price Administration (OPA) ceiling price in favor of the OPA. *Bowles* v. *Seminole etc. Co.*, 89 L. ed. Adv. Op. 1186, 65 S. C. Rep. 1215, 13 L. W. 4459.

On May 28 the court affirmed the jurisdiction of the ICC to revise rate structures and transfer privileges over buslines carrying government employees between Virginia and the District of Columbia during the war emergency. *U.S.* v. *Capital, etc. Co.*, 89 L. ed. Adv. Op. 1175, 65 S. C. Rep. 1176, 13 L. W. 4449.

On May 21 it approved the power of the FCC over hotel charges on long distance telephone calls. *Ambassador, Inc.* v. *U.S.*, 89 L. ed. Adv. Op. 1103, 65 S. C. Rep. 1151, 13 L. W. 4419.

As to the OPA, there were differences of opinion in 1945 as in previous years among the state courts as to the effect and enforceability in the state courts of OPA orders. The Supreme Court of Indiana ruled that OPA directives are legal under the war powers of the president. *State* v. *Alexander*, 59 N. E. 2d 169 (February 14). In several other states (e.g., Maryland, New York and Ohio) state and municipal jurisdiction of such suits was approved. The Rhode Island Supreme Court, however, ruled against the power of the state courts to enforce OPA penalties, and in Idaho and Washington, state courts insisted upon exercising independent judgment against OPA orders where the particular orders were held not to be vital to the success of the program.

The municipal court of Boston refused to take jurisdiction of a consumer's suit because by the terms of the federal statute the court had no power to consider the validity of the regulation itself.

As to the Security and Exchange Commission (SEC),—the New York Supreme Court ruled that New York state courts have no jurisdiction over suits by corporations against officers to recover under the SEC Act profits derived by them from trading on the basis of inside knowledge. One section authorizes suit in any court; another section gives federal courts exclusive jurisdiction. The court failed to find any clearly indicated concurrent jurisdiction, and found practical reasons against it. *American Distilling Co.* v. *Brown*, 54 N.Y.S. 2d 855 (Dec. 12, 1944).

As to censorship,—the federal district court decision in the Esquire case (AMERICANA ANNUAL, 1945, p. 415) was reversed by the Circuit Court of Appeals (CCA), which ruled that the postmaster general may not revoke second class mailing privileges of a magazine which is admittedly not obscene on the ground that it is "morally improper and not for the public welfare and the public good." The court said that no administrative official can properly have the power first to determine what is good for the public to read, and then to force compliance with his ideas. Mail service is not a special privilege. The court told the post office officials to stick to their knitting and confine themselves to the prosaic function of seeing that the mail gets delivered. *Esquire* v. *Walker*, 13 L. W. 2678, reversing 13 L. W. 2048 (CCA D.C., June 4). The decision was appealed to the Supreme Court.

In another decision against censorship, the CCA of the District of Columbia ruled that an educational sex pamphlet may not be barred as obscene, even though it may be misused and misconstrued, provided the language is "uniformly decent." "The dominant effect of an entire publication determines its character." *Walker* v. *Popenoe*, 13 L. W. 2660, (CCA D.C., May 28).

In this connection the decision of the Supreme Judicial Court of Massachusetts in a censorship matter is pertinent. That court in September upheld a conviction, following an administrative ruling, where a bookseller sold *Strange Fruit*. The court said:

> "Regarding the book as a whole, it is our opinion that a jury of honest and reasonable men could find beyond a reasonable doubt that it contains much that even in this post-Victorian era would tend to promote lascivious thought and to arouse lustful desire in the minds of substantial numbers of the public into whose hands this book, obviously intended for sale, is likely to fall."

Significant administrative rulings were these:

ICC,—a transportation broker helping shippers but paid by motor carriers is not entitled to an ICC license,—the carrier receives no service for the money paid and the practice would give the broker control over favored lines. (July).

FCC,—although both the majority and the minority howled about the curse of bigness, the majority of the commission allowed on September 6 the transfer of one of the most important broadcasting facilities to a large industrial empire. The majority found no express power to object, and said it was up to Congress. The minority said it was a problem of righteousness with plenty of precedent for refusing the permission. The commission, however, said it would

mend its rules to prevent such abuses in the future.

FCC,—a trade union charged that a radio station was discriminatory in suppressing discussion of trade controversies, and was unfairly censoring scripts. The FCC ruled (June 26) that the code of the national broadcasters association, under which the station operated, providing that no time shall be sold for the discussion of controversial public issues and that only charities and certain commercial organs may solicit membership, is inconsistent with the statute. The commission said that the problem must be resolved by the management of each station, and not by any mechanical rule. The commission approved a stipulation whereby the union agreed to drop the charges against the station and the station promised to eliminate the code and discontinue its practice of "throttling" free speech: and to make time available on "a fair and just basis."

FCC,—radio-FM rules were announced on August 24, but the operation of the rules was postponed.

CAB,—the Civil Aeronautics Board on June 1 rejected the chosen instruments theory and left American participation in international service up to regulated competition. It divided the European zone into three routes allotted to three carriers subject to a seven years' limit. It also let one domestic line buy up an existing international line and use one of the three routes.

SEC,—on June 29 the commission held inadequate a statement that "these shares are offered for speculation" where no fuller data was given.

Hearings were held in Congress on the McCarran-Summers bill for systematizing administrative procedure, introduced into Congress in January with the backing of the American Bar Association and many other organizations. The bill marks the culmination of ten years of study. The Walter-Logan bill on the same subject was vetoed in 1937, pending the conclusion of these studies and the report of the attorney general's committee, which was filed in 1941. The bill has five features, namely: (a) publicity of administrative law and procedure, (b) minimum procedural requirements as to the two basic forms of administrative operation, general regulations and adjudication of particular cases, (c) judicial review, (d) incidental procedural rights pertaining to any kind of executive authority, (e) limitation upon the types of penalties administrative agencies may impose. The bill was reported favorably to the Senate on November 19.

(2) Civil Actions, Practice and Procedure; Courts and Lawyers.—Women cannot serve on juries in North Carolina. So ruled its Supreme Court on Nov. 8, 1944, relying on the provision in the state constitution that juries are to be composed of "good and lawful men," one judge vigorously dissenting. *State* v. *Emery*, 31 S. E. 2d 858.

By integrating its bar under legislation adopted February 26, West Virginia became the twenty-fifth integrated state in the Union, and the eighth east of the Mississippi.

Admission to the bar was made easier for returning war veterans in several states. Among others,—the New York Court of Appeals waived examination requirements for law school graduates having specified qualifications and an active service of a year or more; and accepted certain war experience as the equivalent of one year of college training. The Supreme Court of Illinois permitted war veterans to take the bar examination if they have finished two thirds of a law school course. In the State of Washington legislation permitted graduates of law schools with one year's war service to be admitted on motion; but the Supreme Court of the state on August 30 ruled that the legislation is ineffective. The courts alone control admissions. *Re Levy and Warnock.*

Connecticut's legislature passed a law similar to the Washington act. So did Maine.

Many law schools also altered their admission requirements. At Harvard, where a college degree has always been a law school prerequisite, a year's active war service will now excuse the absence of a degree in the case of men having "equivalent" educational experience.

Under a constitutional amendment adopted in Texas the six members of the Commission of Appeals, created in 1918, now became justices of the Supreme Court, increasing to nine the previous three-judge court.

Collection agencies hiring lawyers to collect subscribers' claims were held by the Utah Supreme Court to be unlawfully practicing law. *State Bar* v. *Smith et al.* In New York the court of first instance sustained a complaint of the New York County Lawyers Association against Ola C. Cool, operating under the name of Labor Relations Institute, who was furnishing to a large clientele advice as to the action to be taken and avoided under statutes, decisions and regulations.

The federal rules of criminal procedure submitted to the Supreme Court in 1944 (AMERICANA ANNUAL, 1945, p. 413) were approved by the court (two justices dissenting) and filed with Congress in January, to become law unless disapproved before adjournment. These rules were drawn up by an advisory committee appointed by the court, in accordance with an act of Congress approved June 29, 1940, inspired by the success of the federal rules of civil procedure which became effective in 1938 by virtue of the act approved June 19, 1934. Thus was brought to a successful conclusion a process which had been actively going on for over eleven years as a result of a movement initiated at the American Bar Association convention of 1911. The rules regulate every stage of a criminal prosecution from the beginning to the end.

In Florida an eleven-member committee of the bench and bar was appointed in April to draw up a new set of civil procedural rules, in accordance with legislative authority vested in the court at the 1943 session of the legislature.

Erie R. Co. v. *Tompkins*, 304 U.S. 64, 82 L. ed. 1188, 58 S. C. Rep. 817, 114 A. L. R. 1487, which outlawed the "federal common law," was extended by *Guaranty Trust Co.* v. *York*, 89 L. ed. Adv. Op. 1418, 65 S. C. Rep. 1464, 13 L. W. 4564 (June 18) to apply state statutes of limitation to cases brought into federal courts because of diversity of citizenship. The court said:

> "The nub of policy that underlines *Erie R. Co.* v. *Tompkins* is that for the same transaction the accident of suit by a nonresident litigant in a federal court instead of in a state court a block away should not lead to a substantially different result."

On the other hand a federal district court in New York ruled against requiring a litigant to post the security required by a state law in the case of a stockholders' derivative suit. *Boyd* v. *Bell*, 14 L. W. 2069. Nor will the federal court in a removed case assess statutory state

costs. *Vernon, etc. Corp.* v. *Hareen, etc. Co.*, 60 Fed. Sup. 555 (DC E.D. N.Y., July 24).

The denial of knowledge of something which a witness does know is perjury but is not punishable as contempt of court. *Re Michael*, 90 L. ed. Adv. Op. 15, 66 S. C. Rep. 78, 14 L. W. 4007 (November 5).

There were two interesting decisions in libel cases. In *Brown* v. *Mack*, 14 L. W. 2071 (N.Y. Supr. Court, July) a decedent's estate was held liable for a libellous statement in the testator's will. The court said that the executor must probate the will and had no duty to delete the words; he could properly distribute copies of the will to legatees, and was privileged against suit. The libelled wife might have procured a deletion had her attorneys or the executor's attorney known of a procedure to that effect which had been used in several cases, but never ruled on by the court. In *Wright* v. *Farm Journal*, 13 L. W. 2714 (DC N.Y., June 12) it was held that the false publication of a statement that a union leader is a "Communist Party leader" is libellous per se.

The federal district court in Illinois ruled in *Daily* v. *Parkes* in July that the Illinois anti-heart balm act was unconstitutional. The judge said:

"I cannot believe the legislature intended to enact a law which would result in the protection of persons guilty of alienating the affections of husband or wife and make it unlawful for an aggrieved husband or wife to seek any redress for such injury."

The CCA in the Third Circuit in September disclaimed any power to set aside a verdict simply because the damages were excessive. *Scott* v. *Baltimore etc. R.R.*

(3) Competition in Business—Fair Trade and Monopolies.—The Supreme Court of the United States filed decisions in several important anti-trust cases. The most significant was undoubtedly *Associated Press* v. *U.S.*, 89 L. ed. Adv. Op. 1512, 65 S. C. Rep. 1416, 13 L. W. 4596, decided June 18, rehearing denied October 8.

The court affirmed the decree of a three-judge district court enjoining the organization from enforcing bylaws which put it in the power of business competitors to blackball new members. The AP is a co-operative nonprofit association, financed by assessments on the member newspapers to whom it furnishes its news services.

Speaking for the court Mr. Justice Black emphatically denied that newspapers have any special privileges under the Sherman Act. Handling news is no different from handling food. Freedom of speech cannot be used as a "shield for business publishers who engage in business practices condemned by the act." "Freedom to publish means freedom for all and not for some." "Freedom to combine to keep others from publishing is not" freedom to publish.

The objectionable bylaws prohibit members from distributing news to nonmembers, and though noncompeting papers can be admitted to membership on application without initiation fee or onerous terms, competing papers must run the gauntlet of competitors. The court had no doubt that the bylaws "had hindered and restrained the sale of interstate news to nonmembers who competed with members." The arguments that the owner of property should have the right to determine to whom he will sell, and that the AP is only one of several news gathering organizations, were summarily dismissed on the basis of the size and complexity of the AP and its overwhelming dominance of the news field. Two judges filed concurring opinions; three judges dissented, one took no part.

Next in importance was the decision in *Georgia* v. *Pennsylvania R.R. Co.*, 89 L. ed. Adv. Op. 758, 65 S. C. Rep. 716, 13 L. W. 4287, decided March 26. Here the court gave leave to the State of Georgia to file a complaint invoking the original jurisdiction of the court under Article 3, section 2, of the Constitution for injunctive relief under the antitrust laws against a group of railroads which had set up joint rates which preferred the ports of other states over the ports of Georgia. The state charged that these rates were fixed by private agencies, unsanctioned by the Interstate Commerce Act, and prohibited by the antitrust acts. The court (by Mr. Justice Douglas) ruled that the state, as the representative of its people, had the right to proceed, on a showing that the economy of the state and the welfare of its citizens suffered from a conspiracy. Brushing aside procedural difficulties, the court pointed out that the state's only recourse was to the Supreme Court, the ICC having no jurisdiction to break up a conspiracy. The chief justice and three of his associates dissented on the ground that the state should take action before the ICC or in the district court, and had stated no basis for action by the Supreme Court. The governor of the State of Georgia argued the case for his commonwealth.

Other Supreme Court cases:

In *U.S.* v. *Frankfort, etc.*, 89 L. ed. Adv. Op. 649, 65 S. C. Rep. 661, 13 L. W. 4241, the Court decided on March 5 that liquor manufacturers and dealers could be convicted of a conspiracy in restraint of trade even though the conspiracy affected only intrastate sales, and the power to control intrastate liquor traffic is a matter for the states. The court found that the means adopted for the accomplishment of the conspiracy overlapped state lines. Outside manufacturers were hooked into the deal. There was no dissent.

In March the court applied the Clayton and Sherman acts to a conspiracy to create a monopoly in glass-making machines based in part on allotting production of unpatented articles to manufacturers licensed under patents. *Hartford Empire Co.* v. *U.S.*, 89 L. ed. Adv. Op. 302, 65 S. C. Rep. 373, 13 L. W. 4122.

On May 21 the court sustained an antitrust suit against export associations who were trying to control export and import markets in alkalis and fix prices in the United States. The defendants' claim that the court had no jurisdiction until the Federal Trade Commission (FTC) had made an investigation was denied. *U. S. Alkali etc. Ass'n v. U.S.*, 89 L. ed. Adv. Op. 1077, 65 S. C. Rep. 1120, 13 L. W. 4440.

In *Allen Bradley Co.* v. *Local Union*, 89 L. ed. Adv. Op. 1441, 65 S. C. Rep. 1533, 13 L. W. 4580, the court ruled in a declaratory action that a combination in New York City between unions and contractors to monopolize the electrical equipment market might be enjoined. The bona fide purpose of the union to raise wages and bring about better working conditions was held to be immaterial. The legislative purpose to preserve competition rises higher than the purpose to enable labor to better its condition by collective bargaining. Congress never "determined that labor unions

should be granted an immunity" under the Sherman Act, says Mr. Justice Black. Only one justice dissented.

But in *Hunt* v. *Crumboch,* 89 L. ed. Adv. Op. 1429, 65 S. C. Rep. 1545, 13 L. W. 4586, the court on June 18 refused to enjoin under the Sherman Act a union which refused to admit employees of a certain firm to membership or to contract with that firm, thus losing the firm a contract with a closed shop customer. The union was incensed at the employer because a union man had been killed in a strike against the firm and the union blamed the employer. Mr. Justice Black gave the court's opinion here as he had in the *Allen Bradley* case. Four justices dissented.

Lower federal courts filed four important decisions.

(a) The court enjoined and gave triple damages for a conspiracy to keep a rival concern from getting first run pictures, entered into by a company controlling all the first run theaters in Philadelphia and a company distributing 80 per cent of all pictures in the city. *William, etc. Theatre* v. *Loew's,* — Fed. 2d — (CCA No. 3, August 2).

(b) The "Chicago system" of release of motion pictures by arranging successive release weeks beginning with first run loop theaters and ending with general releases at descending prices was held contrary to the Sherman Act. *Bigelow* v. *RKO,* — Fed. 2d — (CCA No. 7, Aug. 3).

(c) The conviction of the three largest tobacco companies under the Sherman Act was upheld by the 6th CCA on the basis of evidence showing that the market price of tobacco was controlled by them, and that they maintained uniform sales prices; made identical and simultaneous price changes, and controlled retail sales by subsidies and coercion. The existence of a power to monopolize and the intent to so do constituted a violation of the act even if the power had not been exhausted. *American Tobacco Co.* v. *U.S.,* 147 Fed. 2d 93 (CCA No. 6, Dec. 8, 1944).

(d) Three companies in the titanium industry were held to have violated the Sherman Act by participating in worldwide agreements regarding patents and a division of territory. The court said that "every pound" of titanium "is trammelled by privately imposed regulation." *U.S.* v. *Nat. Lead Co.,* 14 L. W. 2068 (DC So. N.Y., July 5).

The Supreme Court of Massachusetts approved a Massachusetts statute which permits the court itself to investigate illegal monopolies. The argument to the contrary was that this violated the constitutional provision requiring the separation of powers. Conceding that the procedure is not judicial because it leads to no judgment, determines no rights, and results in a mere finding of fact, nevertheless the process puts information into the hands of the attorney general on which he has a statutory obligation to proceed. The court likens the whole thing to an inquest, or a bill of discovery, or a grand jury. *LaChapelle* v. *United Shoe, etc. Co.,* 61 N. E. 2d (May 2).

The Arkansas Supreme Court ruled against an Arkansas statute permitting taxicab operators a certain length of time to comply with certain city requirements prior to being allowed to continue to operate to the exclusion of later applicants. Competition is mandatory when public convenience and necessity may best be served by it. The effect of the statute was to give a monopoly to the existing Checker cabs. *North Little Rock Tr. Co.* v. *City of N.L.R.,* 184 S. W. 2d 52 (Nov. 27, 1944).

The Wisconsin Supreme Court upheld the Wisconsin statute against deceptive or misleading advertising of optical products. A chain store optical company had advertised bifocal glasses at a low price as bait to draw customers into the stores where a prescription fee had to be paid despite representations to the contrary. *Ritholz* v. *Johnson,* 17 N. W. 2d 590 (February 13).

The "Hit Parade" which figured in litigation in 1944 (AMERICANA ANNUAL, 1945, p. 426) was again before the court several times. Judge Walter of the New York Supreme Court in *Advance Music Corp.* v. *Am. Tob. Co.,* 51 N.Y. Supp. 2d 692 (Dec. 1, 1944) ruled that a music publisher's amended complaint that the radio sponsor did not actually conduct a survey of songs for hits, omitted songs published by the plaintiff which should have been included, and failed to list certain songs in the proper order of popularity, stated a cause of action in unfair competition. This decision was contra to the decision of Judge Hecht of the same court on the complaint as originally drawn (50 N.Y. Supp. 287), which was followed by the federal district court.

Judge Walter said that publishers and sponsors do not compete with each other in the sale of songs, but they do compete with each other in creating the belief that certain songs are popular, and the modern law of unfair competition lays stress on the element of unfairness rather than on the element of competition.

Judge Walter's decision was reversed by the Appellate Division on Feb. 23, 1945 in *Advance Music Corp.* v. *Am. Tob. Co.,* 52 N.Y. Sup. 2d 337.

The court ruled that the complaint did not state a case for action for injunctive relief on the ground of unfair competition. The original complaint having been dismissed, the amended complaint which had been sustained by Judge Walter was now thrown out. The court said that in New York equity will not enjoin a disparagement of property. A tobacco company is not in competition with a music corporation. No cause of action to recover damages for fraud was stated because the plaintiff did not rely upon the defendant's statements. It was also held that the complaint did not state a cause of action for negligent use of words, because there was no duty shown.

(4) Constitutional Law.—Two states adopted new constitutions. The Missouri constitution was approved by a vote of almost two to one, carrying St. Louis and Kansas City and almost half the counties. A skillfully conducted publicity campaign, enlisting nearly all the newspapers in the state and statesmen of all parties and organizations, won out over an opposition based on the fear that negro and white children might attend the same schools, and that taxes would be increased. It was drafted by 82 delegates, equally divided between the political parties, the president of the convention being an anti-New Deal Democrat. The convention was in session for over a year. Three hundred seventy-seven proposals were considered. Public hearings lasted for three months. Eventually it was decided to submit an entirely new document instead of a series of amendments. The new constitution is about two thirds the length of

the old. Much obsolete matter (e.g., against dueling) was omitted.

Changes: women are to serve on juries; freedom of speech is extended to the radio; rights of employees to organize and bargain collectively are recognized; senatorial redistricting is to occur every ten years; seventy-odd state departments are reduced to a maximum of fourteen; a department of public health and welfare is set up; the Supreme Court is given power to make rules of practice and procedure, both civil and criminal; the nonpartisan court plan is confirmed and extended; magistrate courts replace justices of the peace; probate judges must be lawyers; the fee system of paying judges is abolished; the four large counties may draft county charters; absentee voting is extended; the legislature may permit exceptions to the provision of separate schools for white and colored.

As to taxation, a classified tax is substituted for the general property tax. Three classes of taxable property are specified: real, tangible personal and intangible personal; the legislature may provide certain further classifications. The maximum intangible tax is 8 per cent of yield. Intangible taxes are to be collected by the state and returned, less 2 per cent, to the subdivisions; reforestation is encouraged.

In Georgia fifty amendments to the constitution were adopted August 7. These were drafted by a revision commission of 23 members. The constitution of 1877 was lumbered with obsolete provisions and amendments, shackling the governor, limiting the purposes for which public funds could be appropriated, and curtailing the authority of local governments.

The amendments fall into four classes. First, as to the political system: elimination of the poll tax; establishment of a genuine literacy test; ending of special tax exemptions to favored corporations; prohibition against changing the term of a local official without a referendum.

Second, as to efficiency in state government: Supreme Court increased from six to seven to avoid deadlocks; the system of allocation of state revenues abolished; the budget system which has reduced the state debt 80 per cent in two years, written into the constitution; a merit and retirement system for state employees authorized; the office of lieutenant governor created.

Third, as to municipalities and counties: a mandatory home rule section; permission to make zoning laws; the purposes for spending tax revenues expanded; bond limits increased.

Fourth, the governor is prohibited from vetoing constitutional amendments, and future constitutions must be submitted for ratification.

In the Supreme Court of the United States was a series of criminal law cases involving questions of constitutional law.

On January 8 the court decided in *Williams* v. *Kaiser,* 89 L. ed. Adv. Op. 362, 65 S. C. Rep. 463, 13 L. W. 4112, and in *Tomkins* v. *Missouri,* 89 L. ed. Adv. Op. 370, 65 S. C. Rep. 370, 13 L. W. 4111, that under the 14th Amendment the accused in a capital case is entitled to counsel and this right will be enforced in the federal courts if a state court is remiss in that respect in reliance on a state statute which specifies that counsel shall be assigned only when requested. The court brushed aside technical and procedural imperfections in the record. "We can hardly demand of a layman and pauper who draws his petition behind prison walls the skill of one trained in the law."

In *Rice* v. *Olson,* 89 L. ed. Adv. Op. 903, 65 S. C. Rep. 989, 13 L. W. 4370, the court on April 23 freed an Indian who had been convicted of burglary in a state court where he had not been advised of his rights to counsel.

In *White* v. *Ragen,* 89 L. ed. Adv. Op. 932, 65 S. C. Rep. 978, 13 L. W. 4383, the court on April 23 was unable to free prisoners whose counsel had misrepresented them, because the prisoners had not exhausted the possibilities of proceeding for relief in the state court.

On May 7 in *Screws* v. *U.S.,* 89 L.ed. Adv. Op. 1029, 65 S. C. Rep. 1031, 13 L. W. 4397, the court ruled constitutional Section 20 of the Criminal Code, which makes it a federal crime to deprive a person of rights granted by the federal laws and constitution; but freed a sheriff who had blackjacked an accused thief. The trial judge had failed to instruct the jury that the sheriff was not guilty unless he purposed to deprive the person of his constitutional "right to be tried by a court rather than by ordeal."

The inadmissibility of an involuntary confession, which has been the subject of several recent decisions, was further defined in *Malinski* v. *People,* 89 L. ed. Adv. Op. 738, 65 S. C. Rep. 781, 13 L. W. 4279 (March 26). Malinski claimed that his confession was coerced and therefore that admitting it in evidence in the state court was a denial of due process of law. The Supreme Court found not only evidence of coercion but also concessions to that effect in the prosecutor's argument to the jury and therefore reversed the conviction, although there was a plethora of other evidence of guilt. On the authority of the *Malinski case* the eighth CCA reversed on July 2 a conviction of a defendant whose previous conviction was based only in part on a confession obtained by coercion. *Bayless* v. *U. S.* 150 Fed. 2d 236.

The constitutional requirement that treason must be proved either by two witnesses to the same overt act or by confession in open court was discussed in *Cramer* v. *U.S.,* 89 L. ed. Adv. Op. 937, 65 S. C. Rep. 918, 13 L. W. 4357 (April 23). The petitioners were released because the majority of the court failed to find the presence of the necessary requirements. The opinion is a landmark in its discussion by Mr. Justice Jackson of the history of the constitutional provision. Four judges dissented and pointed out that Cramer's own testimony amounted to a confession in open court. Cramer was a naturalized German who had served in the German Army in the First World War, and was in communication with one of the saboteurs sent here from Germany to disrupt our war industries.

The Fifth Amendment was interpreted in two cases. In *U. S.* v. *Willow River, etc. Co.* 89 L. ed. Adv. Op. 709, 65 S. C. Rep. 761, 13 L. W. 4261 (March 26) the court held that damage from the government's raising the water level of a navigable stream causing a diminishing of a power plant's capacity to generate electric power is not compensable under the Fifth Amendment. There is no taking of private property. Two judges dissented on the ground that the ruling to the contrary in *U.S.* v. *Crass,* 243 U.S. 316, had properly stood unquestioned for 28 years.

The court applied the same doctrine to its decision on the same day in *U.S.* v. *Commodore Park, Inc.*; 89 L. ed. Adv. Op. 722, 65 S. C. Rep. 803, 13 L. W. 4300. Here a riparian owner of

lands abutting on a navigable stream sought compensation because the government deposited in this stream materials dredged from navigable tidewater. Although as a fact the deposited material destroyed the navigability of the creek, nevertheless damages were denied because the work was done in furtherance of the public right of navigation, and was not therefore a mere taking of private property.

The court did not apply the 14th Amendment in *re Summers* 89 L. ed. Adv. Op. 1304, 65 S. C. Rep. 1307, 13 L. W. 4518 (June 11) to protect an applicant for admission to the bar who had been rejected by the bar examiners because he was a conscientious objector, although otherwise fitted. The court ruled that it could review the decision of the Illinois Supreme Court in the matter, but said that: "the responsibility for choice as to the personnel of its bar rests with Illinois. Only a decision which violates a federal right" would require the court's intervention. Discrimination against an applicant to the bar on the ground of religion might be objectionable, but refusing admission to a citizen unwilling to fight is proper. Four judges dissented on the ground that the real objection to the man's application appeared to be his religious belief.

The Commerce Clause was interpreted on June 18 in *Southern Pacific Co.* v. *Arizona,* 89 L. ed. Adv. Op. 1469, 65 S. C. Rep. 1515, 13 L. W. 4588. The court invalidated an Arizona law prohibiting the operation of railroad trains of more than 14 passenger cars or 70 freight cars. Analyzing the clash between state and national interests in the protection of interstate commerce from local interference, the court concluded that in this particular case "the state does go too far."

Civil rights were vindicated (or weakened according to the way you look at it) by the decision in *Bridges* v. *Wixon,* 89 L. ed. Adv. Op. 1489, 65 S. C. Rep. 1443, 13 L. W. 4554 (June 18). A deportation order had been based on the charge that Bridges was affiliated with the Communist Party which advised and taught the overthrow by force of the government of the United States. The order had been approved by a federal board and by the attorney general. In canceling the order Mr. Justice Murphy's concurring opinion says: "the record in this case will stand forever as a monument of man's intolerance of man." The decision was based on the theory that deportation is a penalty, and that meticulous care had not been used in obtaining definite evidence against Bridges. The use of unsworn, unsigned statements to prove his membership in the Communist Party was stigmatized. Three judges dissented.

The divorce difficulties of one Williams and his wives were again before the Court in *Williams* v. *N. Carolina,* 89 L. ed. Adv. Op. 1123, 65 S. C. Rep. 1092, 13 L. W. 4424 (May 21, rehearing denied October 8).

The court restored the law substantially to its status prior to the court's decision in an earlier case between the parties. That was *Williams* v. *N. Carolina,* 317 U.S. 287, where (somewhat to the surprise of lawyers generally and considerably to the joy of many divorced persons), the court reversed a North Carolina judgment convicting Williams and his second wife of bigamy. In the earlier case the court had ruled that North Carolina must give full faith and credit to the Nevada divorce. In the present case the court said that the earlier decision had been based on an incomplete record, and now the court affirmed the conviction.

In this second case North Carolina challenged the findings of the Nevada court that the Williamses had acquired domicile in Nevada. Williams and his second wife left North Carolina for the purpose of getting Nevada divorces, and thereupon they married in Nevada and returned to North Carolina. The court now affirmed the long-established principles that jurisdiction for divorce depends on the bona fide domicile of at least one of the parties in the divorcing state, and that a second state is not bound by the decision of the divorcing state on this question of fact, but can re-examine it. Nevada had no power to liberate the North Carolina Williamses from the North Carolina law governing domestic relations.

Uncontested divorces "based upon fraudulent domiciles are now and always have been subject to later re-examination with possible serious consequences." Three judges dissented, fearing the widespread consequences following the decision which might fall upon innocent parties, and deploring the diminution of state power over marriage and its dissolution. One of the dissenting judges questioned the validity and propriety of resting jurisdiction in divorce on domicile.

Commonwealth v. *Esenwein,* 348 Pa. 455 (AMERICANA ANNUAL 1945, p. 413), was affirmed by the Supreme Court, 89 L. ed. Adv. Op. 1152, 65 S. C. Rep. 118, 13 L. W. 4439 (May 21). A Nevada divorce had been obtained by Pennsylvanians who went there for the purpose. The divorce was not recognized in Pennsylvania.

The New York Supreme Court in *Sodero* v. *Sodero,* 56 N.Y. Supp. 2d 823 (June 14) held that an Arkansas marriage after an Arkansas divorce of persons domiciled in New York was void in New York. The court called it contrary to the natural law as codified in the Ten Commandments. There is only one ground for divorce allowed by the statutes of New York to New York residents—infidelity.

On the other hand, the state of Washington Supreme Court recognized a Louisiana divorce obtained by a Louisiana resident, notwithstanding that in accordance with Louisiana law no notice was given to the absent spouse. Louisiana law controlled as to service of process in a proceeding brought there by a Louisiana resident. *Codling* v. *Codling,* 160 Pac. 2d 635, (July 5).

During the year New Mexico, Virginia and Montana invalidated absentee ballot laws as beings unconstitutional, but the Kentucky court approved the Kentucky statute.

In a six hundred page opinion Judge Thompson of Virginia in *Staples* v. *Gilman,* 32 S. E. 2d, 129 (November 1944), said that the legislature can limit the territory of a constitutional convention, and in the second decision on the same case, 33 S. E. 2d 49 (February, 1945) the court upheld the power of the legislature to call a constitutional convention merely to repeal and cancel the poll tax for men in the armed services.

The federal government may incorporate survivorship provision in bonds in spite of a state statute of descent and inheritance. The federal constitutional power to borrow is one reason; the fact that bonds are federal contracts is another. *Ervin* v. *Conn.,* 34 S. E. 2d 402 (Supreme Court N.C., June 6).

The Illinois Supreme Court invalidated a provision of the Illinois currency exchange act requiring applicants to give "such other informa-

tion as the auditor may require" on the ground that this unlimited power amounted to a delegation of a legislative function. The rest of the act was sustained. The business of providing facilities for cashing checks is properly a subject for licensing under the police power, and notwithstanding the equal protection clause of the constitution, the American Express Company, the Postal Telegraph Company and Western Union Telegraph Co. may properly be exempt. *McDougall* v. *Lueder,* 389 Ill. 141, 58 N. E. 2d 899, 156 A. L. R. 1059 (January 17).

Constitutional liberties are not infringed by a state law banning high school fraternities and sororities. *Satan Fraternity* v. *Board,* 22 S. E. 2d 892 (Supreme Court, Florida, August). Attending public school is not a right but a benefaction and the state can properly impose conditions. Whether high school societies are purely social is a question of fact which the legislature can properly answer.

The right of privacy seems to extend to a person's dog; anyway, in *Lawrence* v. *Ylla,* 55 N.Y. Supp. 2d 343 (Supreme Court, New York, April 12) an injunction issued against the sale by a photographer for use in an advertisement of a dog's picture made for the owner.

The New York statute making it a misdemeanor to have for sale publications regarding deeds of bloodshed, lust or crime was approved by the Court of Appeals in *People* v. *Winters,* 14 L. W. 2114 (July 19). The court disregarded the argument that the statute ought to discriminate between truth and fiction.

(5) Criminal Law.—In addition to criminal law cases discussed above under *Constitutional Law,* two Supreme Court cases deserve mention.

On June 11 in *Keegan* v. *U.S.,* 89 L. ed. Adv. Op. 1314, 65 S. C. Rep. 1203, 13 L. W. 4534, the court reversed the conviction of 24 Bundists for conspiracy to persuade the evasion of military service where it appeared that the evasion was counseled for the purpose of testing the constitutionality of the Selective Service Act, and the trial judge had told the jury that this was immaterial.

The Mann Act was held to apply to transportation of women for immoral purposes wholly within the District of Columbia in *U.S.* v. *Beach,* 89 L. ed. Adv. Op. 574, 65 S. C. Rep. 602, 13 L. W. 4232 (February 26).

But in *LaPage* v. *U.S.,* 146 Fed. 2d 536, 156 A.L.R. 965 (CCA No. 8, January 10) a madame who telephoned a former inmate to return to her job from another state at her own expense was freed from the charge of "causing" white slave traffic.

In *Winebrenner* v. *U.S.,* 147 Fed. 2d 322 (CAA No. 8, February 14) it appeared that during the course of a trial which lasted seven weeks the district judge told the jurors not to discuss the case to such an extent that fixed ideas would be formed which would prevent them from changing their minds after hearing all the evidence. This was held erroneous because it implied that the jury might form an opinion so long as it was not fixed. The CCA felt that this change in effect shifted the burden of proof.

In *Ruhl* v. *U.S.,* 148 Fed. 2d 173 (CCA No. 10, March 14) the court said that notwithstanding the McNabb case (AMERICANA ANNUAL 1945, p. 412) a confession obtained two days after arrest and prior to arraignment on a murder charge may be admitted. The prisoner here was well treated and well advised and none of the practices condemned in the McNabb case were used in obtaining the statement. The McNabb case does not impose the requirement of prompt arraignment as a *sine qua non;* it was aimed at other conditions.

North Dakota v. *Colliton,* 17 N. W. 2d, 546; 156 A. L. R. 1403, (N.D. Supreme Court, February 8) interpreted the "Uniform Illegitimacy Act." It was held that a child begotten to a married woman by her paramour is a child "born out of wedlock" within the purview of a statute making the father of a child born out of wedlock liable for maintenance, education and support.

(6) Labor.—Labor law is developing fast. From the many decisions by the Supreme Court of the United States during the transition year 1945 the following established definite points.

In *Thomas* v. *Collins,* 89 L. ed. Adv. Op. 340, 65 S. C. Rep. 315, 13 L. W. 4097 (January 8) the court invalidated a Texas statute which prohibited labor organizers from soliciting memberships in labor organizations without first obtaining a state license card. The court said that the statute restrained the rights of free speech and free assembly. The practical effect of the restriction would be to prohibit a person from advocating trade unionship without having first procured a card. Four judges dissented.

In *Western Union Tel. Co.* v. *Lenroot,* 89 L. ed. Adv. Op. 289, 65 S. C. Rep. 335, 13 L. W. 4106 (January 8) the court failed to find in the Fair Labor Standards Act any prohibition against child labor in the delivery of telegraph messages. To the "baffling inquiry as to what, if anything, moves across state lines in the telegraphic process" the court was unable to give an answer, but concerned itself with the wording of the statute. Four judges dissented.

This same act had been interpreted on Nov. 6, 1944 in *Walling* v. *Helmerich,* 89 L. ed. Adv. Op. 1, 65 S. C. Rep. 11, 13 L. W. 4002, to prohibit a split pay plan whereby the rates of pay did not represent the rate actually paid for ordinary nonovertime hours, and did not allow extra compensation for true overtime hours. The purpose of the scheme was to perpetuate a prestatutory wage schedule.

In *Gemsco* v. *U.S.,* 89 L. ed. Adv. Op. 593, 65 S. C. Rep. 605, 13 L. W. 4214 (February 26) the court interpreted this same statute to permit the administrator to prohibit home work which was circumventing an order prescribing minimum wages. Only two judges dissented.

In *Jewell Ridge* v. *Local No. 6167,* 89 L. ed. Adv. Op. 1543, 65 S. C. Rep. 1550, 13 L. W. 4389 (May 7) "work" under the same statute was defined to include underground travel. Four judges dissented.

On June 11 the court interpreted the same act to apply to employees engaged in the maintenance and operation of a building. More than half the building was an office building used by a company engaged in interstate commerce. In this building was carried on the supervision of factories scattered over the country and over the shipment of their products from state to state. Two judges dissented. *Borden* v. *Borella,* 89 L. ed. Adv. Op. 1240, 65 S. C. Rep. 1223, 13 L. W. 4493.

On the same day in *10 E. 40th Street Building* v. *Callus,* 89 L. ed. Adv. Op. 1244, 65 S. C. Rep. 1227, 13 L. W. 4516, the court, with four judges dissenting, dismissed a case which sought to apply the statute to an office building in New York leased to more than a hundred tenants pursuing a great variety of enterprises. No manu-

facturing was carried on. Four judges dissented on the basis that the statute should apply to all employees "necessary to the production" of goods for commerce, and not merely to those engaged in manufacturing. Both majority and minority opinions concur in declaring the difficulty of drawing lines, and the majority report concedes that when drawn the lines are bound to appear arbitrary.

On the same day in *Elgin, etc. R. Co.* v. *Burley*, 89 L. ed. Adv. Op. 1328, 65 S. C. Rep. 1282, 13 L. W. 4482, the court remanded for further proceedings a suit brought by individual employees subsequent to a decision of the adjustment board under the Railway Labor Act, because the record did not show whether the employees had authorized the settlement against which they were now contending. The court said that the statute does not require individual employees to be bound by the action of the union in the handling of a grievance or individual claim.

Also, on the same day in *Hill* v. *Florida*, 89 L. ed. Adv. Op. 1258, 65 S. C. Rep. 1654, 13 L. W. 4529, the Florida statute regulating labor union activities was partially invalidated. Section 4 of that act prohibited labor union business agents from serving for pay without first obtaining a state license. The court said that this section circumscribed the "full freedom" which the Wagner Act confers on workers in the selection of collective bargaining agents of their own choice. Repugnancy of the state act to the National Labor Relations Act was also found in another section of the state act which imposes penalties upon labor unions who fail to file certain reports with the secretary of state. This section constitutes an obstacle to collective bargaining. The Chief Justice dissented as to this latter section. Reconsideration was refused, October 8.

In *Armour* v. *Wantock*, 89 L. ed. Adv. Op. 120, 65 S. C. Rep. 165, 13 L. W. 4028 (Dec. 4, 1944) the court had applied the act so as to hold compensable as overtime the additional time during which employees were engaged in standby service; and in *Skidmore* v. *Swift & Co.*, 89 L. ed. Adv. Op. 125, 65 S. C. Rep. 161, 13 L. W. 4030, on the same day the court made a similar decision where the administrator had ruled that time spent sleeping and eating should be excluded from the work week, but other on-call time should be included.

The Supreme Court unanimously refused on June 11 to take jurisdiction of a declaratory judgment proceeding to reverse the Alabama *McAdory* case (AMERICANA ANNUAL, 1945, p. 418). *Alabama S.F. of L.* v. *McAdory*, 89 L. ed. Adv. Op. 1270, 65 S. C. Rep. 1384, 13 L. W. 4541.

Some cases in the lower federal courts: In *NLRB* v. *Atkins & Co.*, 147 Fed. 2d, 730, the 2d CCA in February ruled that plant guards have no collective bargaining rights. The court said that the whole relationship is dominated by the army.

In *NLRB* v. *Cowell, etc. Co.*, 148 Fed. 2d 237, the 9th CCA on March 6 ruled that a business which has discontinued trading across state lines is still a business affecting interstate commerce if it has labor disputes.

As to peonage, in *Pierce* v. *U.S.* 146 Fed. 2d 84, the 5th CCA upheld on Dec. 4, 1944, a finding of guilty where the testimony was that the defendant got vagrant women out of jail by paying their fines, took them to his roadhouse and would not let them leave as long as they were in debt to him for the fines and the cost of their clothing. The girls "engaged in the activities of the roadhouse."

In *Stapleton* v. *Mitchell*, 60 Fed. Sup. 51 (DC Kan., March) parts of the Kansas Union Control Act were held unconstitutional; e.g., a section requiring majority vote for a lawful strike; a section making it unlawful to refuse to work on goods because they are not union produced; a section prohibiting stoppages or strikes because of jurisdictional disputes. These activities are within the protection accorded to free speech. The court, however, refused to nullify the act as a whole under the equal protection clause of the constitution. Advocacy of labor unions is proper, but union activities may be regulated in the public interest on a reasonable basis.

An unincorporated union may be sued for a declaratory judgment by an employee on behalf of himself and others, and process served upon subordinate locals or union representatives. *Tunstall* v. *Brotherhood*, 148 Fed. Sup. 403, (CCA No. 4, April 9). This case involved the race question and was before the Supreme Court at an earlier stage. (See *Race Problems*, below.)

A nonprofit charitable hospital in the District of Columbia was held subject to the National Labor Relations Board (NLRB) because hospital activities are trade and commerce, and such institutions are not exempted by the act. *NLRB* v. *Central, etc. Hospital*, 145 Fed. 2d 852 (CCA D.C., Nov. 13, 1944).

An employer's explanation of his position prior to an election, sent by letter to all employees, is proper but the activity of supervisors in getting out the vote and in implying that the employer was anti-union, is illegal. The supervisor had explained, by use of a sample ballot, how to vote, and had pointed out that benefits might be withdrawn. *Big Lake Oil Co.* v. *NLRB*, 146 Fed. 2d 967 (CCA No. 5, January 29).

As to workmen's compensation—a statute prohibiting self-insurers from engaging service companies to look after workmen's compensation claims is constitutional, as a reasonable exercise of the police power. The legislature properly concluded that these service companies would tend to prevent workmen from receiving adequate compensation for injuries. The theoretical supervision by the Industrial Arbitration Board (IAB) is insufficient to control abuses. Most cases have to be disposed of without close supervision by the board. *Independent Service Corp.* v. *Toussant*, 149 Fed. 2d 204 (CCA No. 1, May 4).

The mate of a tug is not a member of the crew under the Longshoremen's Act. The general nature of the man's duties is not the test. The correct test is his duties on the day of the accident. *Long Island RR Co.* v. *Lowe*, 145 Fed. 2d 517 (CCA No. 2, Nov. 24, 1944).

The following are some state court cases: Colorado invalidated compulsory incorporation of unions. *AF of L.* v. *Reilly*, 155 Pac. 2d, 145 (December 1944). In this case the Colorado statute was held unconstitutional on the ground of denying the right of free speech, press and assembly to labor unions. Other sections tied to this requirement were also held invalid. By limiting the right to engage in certain types of union activity to incorporated unions the statute unlawfully denies the privilege to others. Requiring incorporation imposes a fundamental change in the form of voluntary associations of workmen as a prerequisite to the right to picket and assemble.

The court refused, however, under the declaratory judgment act to determine the constitutionality of unenforced provisions of the act defining unfair labor practice. The court dodged deciding "a speculative inquiry" as to which "concrete situations not yet developed." Three judges dissented in part.

Supplementing the decision in *James* v. *Marinship Corp.*, 155 Pac. 2d 329 (Dec. 30, 1944), the California lower court ruled that a union maintaining a closed shop and closed union is subject to injunction if it refuses membership to independent distributors of milk, and seeks to prevent milk brokers from selling milk to them. The union had closed shop contracts with 95 per cent of the brokers in the area. It wanted to make independent distributors driving their trucks to employ union drivers. The court said that:

"The elimination of such persons from our economic life is no more a legitimate object of union activity that would be elimination of negroes. *Bautiste* v. *Jones*, 155 Pac. 2d 373 (Dec. 30, 1944)." (Rehearing denied, Jan. 29, 1945.)

On February 21 the California Superior Court in *Warren* v. *Screen Office Guild*, 13 L. W. 2473, approved an assessment upon union members to support candidates in a state election. The court said that this assessment does not interfere with the right of suffrage, and there is no provision of California constitution or law similar to the federal acts, which prohibit the use of union funds to support political candidates. Equitable relief against the union officials on the ground that under the union constitution, union money could not be used to support state candidates, was denied because the facts show that the money was actually used to defeat an anti-closed shop proposition, and only incidentally to elect candidates.

On the other hand, in *Trent* v. *Industrial Union* (no opinion filed, cited in *Monthly Labor Review*, January 1945, p. 128), the California Superior Court issued a temporary injunction against using union funds or special assessments in congressional elections, but refused an injunction against the use of such funds to fight a constitutional amendment.

This matter of assessments was ruled upon by the California Supreme Court on January 20, in *DeMille* v. *Am. Fed. of R. A.* The court said that a labor union may punish a member who refuses to pay assessments levied to finance a campaign to defeat an anti-closed shop proposition. The court differentiates the case from spending union funds to elect or defeat any particular candidate. The union constitution permitted expending funds for department purposes "as long as it is not used in political activities." The court said that support of legislative measures is not a political activity. Moreover, the fact that some of the organization favored the legislation did not prevent funds of the organization being spent in accordance with the vote of the majority. The federal act against union contributions does not affect a state election even though the proposition was on the same ballot with federal candidates.

The California district court of appeal invalidated a maintenance of membership provision added by an arbitrator to a collective bargaining contract. This provision would limit the employer's exclusive right to hire and fire. The contract forbade any arbitration which would "arbitrate away any provisions of the contract." *Consolidated Vultee, etc., Corp.* v. *United, etc. Workers*, 14 L. W. 2008 (June 4).

In *Szabo* v. *Pa. R. R. Co.* 40 Atl. 2d 562, on January 4, the New Jersey Court of Errors and Appeals reinstated a jury verdict allowing recovery where a worker was taken suddenly sick on the job and was taken home by the gang, but was left at home with no one to take care of him so that he died. It is up to the employer to see the employee reasonably safe through an emergency which develops on the job.

Some significant administrative decisions: On June 25 the National Labor Board refused to take jurisdiction over a local transit company union all of whose routes crossed state lines. The effect on interstate commerce was felt to be too remote to bring the company under the statute. Two cases where the board had taken jurisdiction were distinguished as involving connecting carriers or carriers of workmen to factories producing interstate commerce goods.

Merely talking against union contracts and expressing a preference for dealing direct with employees is proper. This was held by the board on July 4. The employer had sent out letters and bulletins, but had made no threats.

A nonprofit association was treated as an employer because of interference with union organization, in *NLRB* v. *Holtville Ice Co. et al.*, 51 NLRB No. 103.

In *re Reliance Mfg. Co.* on February 28 an employer was ordered by the NLRB to reinstate a forewoman who had been discharged for refusal to make an anti-union speech. She was not a union member.

In the Packard Motor Car Co. case on March 26, the Foremen's Association of America persuaded the NLRB to certify it as a bargaining agent for company foremen. This was a reversal of the board's position in the Maryland Dry Dock case in which it decided that the establishment of foremen units would impede collective bargaining and disrupt techniques. The board in the Packard case found that a foreman in a modern plant is merely a plant policeman following a policy set by higher officials, enforcing these policies through rigidly fixed procedures. Plant policy and technique, not the individual man, control the situation. The board said that the interest of the foreman as an employee has changed, and the trend among foremen to seek the opportunity for collective bargaining has been strong and consistent. Unions which include both foremen and workers will not be certified as bargaining units. Foremen's unions do not threaten harm merely because the foremen are organized. Foremen in big industries correctly consider themselves a little group. Their interests as workers warrant their binding themselves together for collective bargaining.

(7) Legislation, Federal.—The decision, and even more the statements by the justices, in *U.S.* v. *Southeastern, etc. Association*, 88 L. ed. Adv. Op. 1082, 64 S. C. Rep. 1162, 12 L. W. 4451 (AMERICANA ANNUAL, 1945, p. 411), declaring that insurance is interstate commerce caused consternation in the insurance business throughout the country. For the present at least, some of the worries were assuaged by the passage of P. L. 15, S. 340 (March 9).

This act declares that the continued regulation and taxation by the several states of the business of insurance is in the public interest, and that silence on the part of the Congress shall not be construed to impose any barrier to the regulation or taxation of such business by the several states. The statute goes on to say that the business of insurance, and every person en-

gaged therein, shall be subject to the laws of the several states which relate to the regulation or taxation of such business.

No act of Congress shall be construed to invalidate, impair or supersede any law enacted by any state for the purpose of regulating the business of insurance, or which imposes a fee or tax upon such business, unless such act specifically relates to the business of insurance; provided, however, that after Jan. 1, 1948, the Sherman Act, the Clayton Act, and the Federal Trade Commission (FTC) Act, shall be applicable to the business of insurance to the extent that such business is not regulated by state law. Until that date these acts and the Robinson-Patman Act shall not apply to the business of insurance, with certain provisos.

Several acts continuing war agencies and war measures were enacted; namely, the Commodity Credit Corporation; the Lend-Lease Act; the Smaller War Plants Corporation; the Selective Training and Service Act; the statute of limitations with reference to the Pearl Harbor debacle; and the Emergency Price Control Act. Added to the federal criminal law was a statute defining the crime of aiding in the escape of prisoners of war.

The Bretton Woods Agreement and the San Francisco Charter of the United Nations were both approved.

P. L. 67, H. R. 2068, approved May 29, enacted a military personnel claims act to provide for the settlement of claims of military personnel and civilian employees of the War Department, and army, for damage, loss, etc., of personal property occurring incident to their service.

An act, approved July 1, reclassified the postal service, established uniform procedure for computing compensation and generally raised pay; and approved June 30 was a general Federal Employes Pay Act, increasing salaries, improving working conditions and at the same time reducing federal personnel.

The first week in October was established annually as National Employ the Physically Handicapped Week by an act approved August 11.

National daylight saving or war time went out on Sept. 30, 1945, by practically unanimous congressional action.

For the duration of the war the exercise of certain functions of the president with respect to courtsmartial was delegated to the Secretary of War and his Under-Secretary, and to the Secretary of the Navy and his Under-Secretary; that is, functions of confirmation, of commutation and of sentences except those of death. Executive Order No. 9556, 10 F. R. 6151, May 26.

To meet a political exigency with reference to the nomination of former Vice President Wallace as Secretary of Commerce, P. L. 109, S. J. R. 65, approved June 30, transferred to the Reconstruction Finance Corporation (RFC) certain of the sub-corporations set up under the RFC.

(8) Legislation, State.—Every legislature in the country was in session in 1945. A mass of legislation was enacted—just as a sample, 1,500 laws in California. The Connecticut legislature adopted the traditional device of setting the hands of the clock back at its last session so that many laws were actually passed after the expiration of the legal session of the legislature at midnight on June 6. The Connecticut Bar Association requested the governor to call a special session of the legislature to validate this legislation which included the state budget, the election of two judges and various important laws, but the governor determined that no emergency existed and declined to call a session of the legislature unless later court action should make it necessary.

Most of the legislation, much of it not published until too late for review here, comprised acts merely tinkering existing statutes. These generally require no mention. But there were some laws which deserve comment because of their novelty or because they make fundamental changes or show significant trends. Sometimes the very fact that a proposed law failed of passage is of real importance, as was pointed out by Bethune Jones in an article on legislative trends in *American Law and Lawyers*, September 18.

Some of the high spots in the year's legislative activities will be here classified alphabetically.

Administration and Government.—A tendency was discernible to systematize the work and directives of state boards, commissions, and executives. In California for instance, administrative decisions are henceforth to be made only after stated proceedings conducted by trained hearing officers. A division of administrative procedure is set up, and court reviews are provided for. Other states; for example, Connecticut, Illinois, Nebraska, require filing of certified copies of administrative rulings in order to make them valid. Several states (for example, New York, Vermont) permit local governmental units to accumulate reserve funds for paying bonded indebtedness and other purposes. To accumulate money by taxation to meet anticipated future expenditures is a concept slow of acceptance in American local government.

Advertising and Publicity. — Maine, New Hampshire, Virginia, Florida, and a very few other states, have for many years gone out for the vacationing tourist through state publicity. State appropriations for this purpose were increased in these states, and other states entered the same field. Michigan, West Virginia and Iowa created state tourist or publicity councils. Similar bills were proposed in at least four other states, and about two thirds of the states now have publicity agencies, and substantially all the states advertise.

Architecture.—Maine created a state board of architects.

Automobiles. — Financial responsibility laws have been more popular than ever this year. Several states (for example, Nebraska, Minnesota and Georgia) set up laws of this type, although other states (Arizona, Nevada and North Carolina) rejected the proposition. Starting in New Hampshire in 1937 there are now nearly twenty states with such laws.

Aviation.—Congress having as yet placed no effective limit on the power of states to regulate aviation, and no progress having been made toward adopting uniform state legislation on the subject, the states have been following separate courses. Several states this year (for example, Vermont, Washington) passed revised laws regulating aviation and authorizing airports. Wisconsin now permits reciprocal airports by local government agencies of that state in connection with similar units in other states. Washington passed the model airport zoning act, and created an advisory aeronautics committee.

Banking.—Wisconsin was added to the states which license community currency exchanges. New Mexico set up provisions organizing credit

unions. New York permitted nonresident American banks and trust companies to act generally in that state as fiduciaries where the home state is reciprocal. The previous law related merely to executors and trustees. Michigan added the now frequent provision indemnifying bank directors for expenses incurred in litigation clearing them from statutory liability.

Committees, Commissions, Councils.—Committees for investigating and reporting recommendations to subsequent legislatures were set up in many states; for example, Idaho for its educational system; Vermont to survey hospitals; West Virginia to inquire into health insurance plans; North Carolina for domestic relations, and for forestry practices; Virginia for health benefits to veterans; Washington for its educational system; Pennsylvania for insurance company regulation; Arkansas for statute revision; Connecticut for probate law and procedure; Vermont to study finances and to study the need of boiler inspection, and a commission to revise the statutes of the state; Colorado to investigate the functions of the three branches of state government. Judicial councils to suggest improvements in court procedure were constituted in Georgia, New Hampshire and Vermont. Virginia set up a pardon and reprieve board. Arkansas created a state apiary board, and Vermont a development commission.

Constitutional Law.—New Hampshire submitted to the election of November 1946, the question of calling a constitutional convention. Similar propositions were defeated in Kansas, Florida and Alabama. A seven-member commission will submit suggested changes to the legislature of 1947 in Tennessee. An Illinois constitutional convention was proposed, but the legislature substituted a proposed amendment which would make it easier in the future to amend the present constitution. The New Jersey legislature turned down an effort in that state to reinstate the proposition for amending the constitution, which was defeated in November 1944.

Courts and Civil Actions. — Massachusetts now permits exceptions in lieu of appeal in both probate proceedings and suits in equity; also provides that verdicts shall not be set aside solely on the ground of inadequacy of damages until the parties have first been given an opportunity to accept such additional amount as the court adjudges reasonable; and that new trials for inadequacy of damages may be granted simply on the question of the amount of damages. The provisions for declaratory judgments are extended to "any case in which an actual controversy has arisen," removing the previous limit that the procedure must interpret a written instrument. A law now forbids the use in evidence in personal injury cases of written statements signed by a party to the action unless a copy of such statement is furnished to the party making the statement or his attorneys within ten days after written request. Vermont passed a law dispensing with the necessity of taking formal exception to rulings of a court during a trial. The Texas legislature killed a bill to take the rule-making power away from the courts.

Arizona, Colorado and Delaware are added to the states which now permit women to serve on juries. Illinois provided for declaratory judgments in certain designated cases. In Maine a small claims procedure leading to a summary judgment was adopted.

In New York a defendant may now demur to any count in an indictment. Vermont amended numerous provisions regulating courts and judicial procedure.

Criminal Law and Procedure.—As a result of the scandal arising from the bribery of college basketball players, New York made it a felony to bribe amateur athletes. New York also passed several laws removing paroled felons from the provisions of law applicable to felons with reference to voting and various civil and professional privileges. New York also passed a law desired by Christian Scientists relieving Christian Science parents from criminal liability for failure to furnish medical attendance to their sick offspring, "provided that the laws relating to communicable diseases and sanitary measures are not violated."

North Carolina limited the power of police and sheriffs to take finger prints, eliminating a provision requiring fingerprints when the officer deems it advisable.

Maryland established short forms of indictment for certain crimes. Illinois passed a controversial bill defining radio misstatements made knowingly and maliciously, but radio stations are protected if they have no advance knowledge or opportunity to prevent the libel, and political addresses are exempt.

Massachusetts provided that criminal defendants even in capital cases may on death or incapacity of a juror waive right to trial by a jury of twelve. In any civil or criminal case, including capital cases, if the trial "is likely to be protracted" the court may impanel not more than two extra jurors as stand-ins.

Dams and Flood Control.—Vermont passed several laws on this subject aimed at holding up federal control projects to which the state has not given permission. Indiana created a flood control and water resources commission.

Dogs.—Arkansas requires dog vaccination.

Health and Welfare.—North Carolina provided for the arrest and imprisonment of active tuberculosis patients who do not follow health instructions. Vermont set up a blood plasma bank with a board of control. Maryland added a bureau to administer a program of medical and nursing care for poor persons, and permitted doctors to show their specialties on their signs, and to mail to patients notices of times for periodic examinations. Maine and North Carolina regulated nursing homes.

The most intense health insurance controversy of the year was in California where the governor sought to obtain a system of compulsory health insurance financed by contributions from employers and employees. The legislature held it up. The same thing happened in Rhode Island. Laws to the same effect introduced in New York were not pressed this year. The cash "sickness plan" now effective in Rhode Island, which compensates workers for loss of wages while sick, but does not provide for medical and hospital care, was proposed but not enacted in Colorado, Connecticut, Massachusetts, Minnesota, New Jersey, New Mexico, New York, Montana and Washington. The extension of "Blue Cross" hospitalization was however permitted in several states.

Highways.—The removal of state regulations impeding highway transportation was a feature of the legislative year 1945. Truck size and weight restrictions were liberalized in Arizona, Colorado, Iowa, Minnesota, North Carolina, North Dakota, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Wyoming and elsewhere. One such bill passed in Indiana was

vetoed. Throughout the eleven states west of the Dakotas, a trailer up to 60 feet long and weighing 68,000 gross pounds may now be operated. Maine and New Hampshire were added to the list of states permitting reciprocal truck registration. Pennsylvania repealed its prohibition of auto-carrying trucks, and Colorado did away with its boundary inspection statutes.

Parking meters were legalized in several states; for example, Indiana. That state also provided for reports of highway accidents and authorized municipal auto parks.

Holidays.—Several other states joined the group (now including all the states except Arkansas and Tennessee) which specify that Thanksgiving Day shall be the fourth Thursday in November instead of leaving it for the executives to choose the day. Kansas designated the fourth Saturday in September as American Indian Day, and repealed the law prohibiting various kinds of entertainment on Memorial Day. Wisconsin declared that "On Good Friday the period from 11 A.M. to 3 P.M. shall uniformly be observed for the purpose of worship."

Juvenile Delinquency.—New York took a distinct forward step in passing a series of laws to prevent juvenile delinquency and improve the treatment of youthful offenders. A state youth commission was created. Juvenile court measures were considered in Florida, Maryland, New York, Oklahoma, Texas, Wyoming and other states.

Labor.—Mississippi may lose its status as the only state without a workmen's compensation law if it adopts a bill which will be submitted by a legislative committee appointed in 1944. An apprenticeship council was set up in Vermont.

Up to August second injury funds had been provided in 32 states, the District of Columbia, Hawaii and under the U.S. Longshoremen's Act. Thirteen of these states set up such funds in 1945; namely, Arizona, California, Colorado, Connecticut, Delaware, Iowa, Kansas, Maryland, Oregon, Pennsylvania, Washington, and Wyoming. A model law was submitted by the International Association of IAB&C's in September 1944, which has been substantially followed in several of the 1945 acts. In five states,—Minnesota, New Jersey, New York, North Carolina and Oklahoma, amendments to existing second injury funds were enacted in the 1945 sessions.

Colorado, Florida and Maine were added to the states having occupational disease statutes. New York revised and systematized the whole setup for the administrative enforcement of the workmen's compensation law.

Added to the states which have tried to outlaw the closed shop was South Dakota. The legislation also placed the proposition before the voters as a constitutional amendment to be voted on in 1946. Similar bills were proposed in other states, but defeated in Arizona, Colorado, Georgia, Kansas, Maryland, New Hampshire, Tennessee and Texas. The Arkansas legislature refused to implement the anti-closed shop amendment adopted in 1944. Other bills limiting labor union activities were defeated in Arkansas, California, Colorado, Delaware, Massachusetts, and Vermont, and a bill which would have granted power to employees to sue strikers for losses sustained in jurisdictional strikes was vetoed by the governor of Minnesota.

Landlord and Tenant.—Massachusetts invalidated as "against public policy" provisions in leases whereby the tenant covenants to free the landlord from liability due to the landlord's own fault with respect to premises not within the exclusive control of the tenant. New York entered a new field of government regulation by a law effective at least until July 1, 1946, establishing commercial rent ceilings in New York City and freezing occupancies subject to such ceilings.

Liquor.—Higher liquor taxes were enacted in several states; for example, Indiana, Oklahoma and Utah. Prohibition failed of adoption in any state. Arkansas, Georgia, North Carolina, and South Carolina were among the states where prohibition laws were defeated. West Virginia, however, lowered the legal alcoholic content of beer. A referendum on whether liquor may be sold by the drink was defeated in Utah, and Idaho; South Dakota, and Washington killed similar bills. North Dakota refused to outlaw the sale of liquor in roadhouses, and South Dakota in cafes. Idaho refused to separate beer and dancing. Local option moves failed in Indiana, South Dakota and other states. Wets and drys joined hands in Michigan and Minnesota to strengthen enforcement of liquor laws; Delaware and Oregon passed similar laws. The governor of Arkansas vetoed a bill removing limitations on the number of beverage licenses in wet counties. Connecticut set up a state board to administer a fund for the rehabilitation of inebriates. Alabama and New Jersey created fact finding commissions.

Marriage, Divorce and Adoption.—Pressure for the liberalizing of divorce laws, probably as a result of the thousands of hasty war marriages and of the Supreme Court decision in the Williams case, was evident in many legislatures. Delaware passed a bill allowing recognition by its courts of divorces and annulments granted elsewhere, except where the decree was for a cause occurring in Delaware, or for a cause which is not a ground for divorce in Delaware.

Idaho added five years separation as a ground for divorce. Additional grounds for divorce in New York were defeated. South Carolina refused to permit divorces. Arkansas defeated a bill to substitute one year for 90-day residence, and Montana rejected a 30 days' residence law. The governor of Colorado vetoed two laws aimed at preventing court review of divorces granted in other states.

Vermont provided that money payments in divorce decrees "shall have the force and effect of a judgment order." North Carolina specified that a divorce is to revoke that part of a will bequeathing property to the then spouse.

As to marriage, Arkansas enacted a three-days' notice of intention to wed, and similar waiting periods were the subject of bills in other states which do not already have the provision. Oklahoma passed the premarital physical examination bill which more than half the states now have. An attempt to repeal it in Idaho was rejected. Bills to outlaw common law marriages were offered in several states where such marriages, recognized by law, are being used in order to evade blood tests. Several bills to legalize proxy marriages and service men's marriages were also under consideration. Colorado prohibited marriage of persons under 16 except on court approval.

As to children, several states stiffened the requirements for notice to a natural parent of an adoption proceedings. Maine made adequate the consent of an agency having custody of a child, and permitted adoption regardless of age and without consent of parents if the adoptee is over 21. Wisconsin made adopted children heirs to property as "lineal heirs," and defined the burden

of proof where the legitimacy of a child of a married woman is in question. Vermont revised its whole adoption statute.

Names.—Arizona forbade the change of names and descriptions of natural or artificial objects, places or things, by state officers, departments, agencies or employees, stating that it is the public policy of the state to continue existing names so as to protect and preserve the historical record of the state. Nebraska changed the designation of the state from Tree Planters State to Corn Huskers State.

Postwar Security.—An unusual bit of legislation was a resolution passed by the New Hampshire legislature which authorized the governor to request the selectmen of towns to arrange for expressions of opinion at the annual March town meetings regarding the United States membership in a world security organization. The overwhelming vote in favor of such an organization by the hard-headed voters at town meetings in this supposedly isolationist state was an eye opener.

Probate.—Some changes in probate law and procedure were these: New Mexico provided that joint administration may be granted where an estate has descended without administration from a decedent to a now deceased heir. Delaware permitted persons over 18 to make wills. Arkansas tinkered in several acts with its law regarding the granting of administration to nonresidents, finally permitting letters to issue to nonresidents named in wills. North Carolina gave the widow one half instead of one third of the personal estate where there is only one child, and the same share as a child if there are two or more children.

Public Records. — Recording by photostats and photographic machines was permitted in several additional states; for example, Arizona, Kansas, and North Carolina.

Race Discrimination.—New York's law against race discrimination breaks new ground and gives New York primacy in the enactment of a program against racial and religious discrimination. On the basis of the report of a commission authorized in 1944, statutes were passed creating a state commission against discrimination, of five members appointed by the governor. The law declares that:

> "The opportunity to obtain employment without discrimination because of race, creed, color or national origin is hereby recognized as and declared to be a civil right."

The commission may obtain a civil order of enforcement from the civil courts subject to judicial review. The state commission is to formulate policies and make further recommendations to the legislature. Excepted from the law are domestic service, employers with fewer than six employes, and various clubs and institutions.

In connection with this legislation various laws relating to discrimination because of race, creed or color were amended so as to prohibit discrimination because of national origin.

Maryland refused to repeal its Jim Crow law, but legislation similar to the New York law was offered in several other states, and adopted in New Jersey. The New Jersey measure sets up a division in the state department of education to enforce antidiscrimination in employment, and at the same time New Jersey enacted a series of bills broadening the state's existing antidiscrimination laws to include race, creed and ancestry.

Bills to ban discrimination in public accommodations or to strengthen discrimination laws already on the books were defeated in Utah, Oregon, Rhode Island and Kansas, although in Utah an interim statute of racial discrimination was provided for.

Service Personnel and Veterans.—Many states adopted laws regarding acknowledgments of documents, making of powers of attorney, and drawing of wills by men in the service, and proof of death and of wills of service men. Laws regarding conservators for persons in the service and uniform veterans' guardianship acts were also adopted, and acts permitting commissioned officers to administer oaths of office to service personnel. Several states excused service men from taxes, tax penalties, payment of license fees and other exactions. At least ten states granted some form of income tax exemption. Three gave property tax exemptions, and three enlarged the inheritance tax exemption on the estate of a service man dying in service. Many states created commissions to look after the welfare of veterans.

Slot Machines.—Idaho allowed nonprofit fraternal and similar organizations to operate slot machines upon paying a fee.

State Colors.—North Carolina designated red and blue as the state's colors.

Taxation.—The significant feature of the tax legislation of the year is the definite tendency against adding or increasing state taxes. During the war, bonded indebtedness has been reduced and surplus funds have been accumulated, but a use tax on property bought outside of Arkansas was vetoed by its governor, while Oklahoma passed a similar law.

The decision of the Supreme Court in 1944 defining insurance as interstate commerce was responsible for a revision of the tax systems of many states with reference to insurance companies. Rates were equalized on domestic and foreign companies so as to avoid the danger that the tax levy for the year on all insurance companies might be invalidated. Up to July 1, 20 states had passed such acts with other states to follow later. In some of these states the existing rates applying partially were extended to apply to all companies. Other states repealed discriminatory provisions and some took advantage of the opportunity to revise (upwards) existing schedules. Along with these measures went legislation in many states freeing the directors of domestic companies from personal liability for the payment of taxes imposed and paid in other states under laws which might subsequently be declared unconstitutional.

Time.—Arizona adopted standard Mountain time except as to matters governed by federal law.

Uniform and Model Laws.—Until the legislative record of the year is complete it is impossible to collate the list of uniform and model laws adopted, but it can be noted at this time that the uniform narcotics act as amended was adopted in several states. New York passed with changes the model deposit in trust law; the model deposit in two names law; and the model adverse claim to deposit law. New Jersey passed the uniform common trust fund law.

(9) Race Problems.—This heading comprises this year an extensive category. The problem of the Nisei reached the Supreme Court for decision at the sitting Dec. 18, 1944, just before the new year. In *Korematsu* v. *U.S.* 89 L. ed. Adv. Op. 202, 65 S. C. Rep. 193, 13 L. W. 4062, the court said that legal restrictions curtailing the civil rights of a single racial group must be subject to rigid scrutiny, but it is within the war power to

exclude citizens of Japanese ancestry from a west coast area threatened by Japanese attack, and to transfer them to and detain them in camps and centers. The conviction of an American citizen of Japanese descent for remaining in a military area contrary to an executive order, was affirmed where it did not appear whether or not he was loyal, no question being raised on that point. The court conceded the hardship of the decision, but said that "hardships are part of war, and war is an aggregation of hardships." The court also approved the order notwithstanding that it did not discriminate between loyal and disloyal citizens, and again said that the war power is "the power to wage war successfully." Three judges dissented, three took no part in the decision, and one of the concurring judges concurred only in part. The decision was therefore rendered by a minority of the whole court.

But on the same day in *Ex parte Mitsuye Endo,* 89 L. ed. Adv. Op. 219, 65 S. C. Rep. 208, 13 L. W. 4054, the court limited the Korematsu decision. In this case an American citizen of Japanese descent but of proved loyalty was released on habeas corpus. She had been removed to a war center and there detained against her will after her loyalty had been established and leave clearance granted.

The civil rights of the Negro were again before the court in *Akins* v. *Texas,* 89 L. ed. Adv. Op. 16, 65 S. C. Rep. 1276, 13 L. W. 4467 (June 4). The conviction of a Negro in Texas was affirmed, notwithstanding the fact there was an arbitrary and purposed limitation by the jury commissioners of the number of Negroes to be placed on the grand jury panel. Of the grand jurors only one was a Negro. The Supreme Court was not prepared to say that the judgment of the jury commissioners to the effect that one Negro on a grand jury was enough, should be disapproved in the absence of any evidence that there was a deliberate intention on their part to discriminate against the colored race. The court says: "Fairness in selection has never been held to require proportional representation of races upon a jury." Less than 16 per cent of the population of this particular county were Negroes. Three judges dissented. The courts of the Southern states wrestled throughout the year with this problem of Negroes on jury lists, and several decisions were rendered which tried to reconcile the various federal Supreme Court decisions with local practices.

In two cases under the Railway Labor Act the court, Dec. 8, 1944, enforced the duty of the bargaining agent of a union to represent a colored minority of employees. *Steele* v. *Louisville, etc. R. Co.,* 89 L. ed. Adv. Op. 172, 65 S. C. Rep. 226, 13 L. W. 4075; *Tunstall* v. *Brotherhood,* 89 L. ed. Adv. Op. 181, 65 S. C. Rep. 235, 13 L. W. 4079.

Steele was a Negro fireman suing for himself and other Negro firemen. The brotherhood, which was the bargaining agency, excluded Negroes from membership. The brotherhood without consulting the Negro fireman, negotiated with the railroads for an agreement which would limit and ultimately exclude Negro firemen. The court said that the Railway Labor Act did not confer upon a union the power to sacrifice for the benefit of its members, rights of a minority of the employees who were excluded from joining the union.

In *Railway Mail Association* v. *Corsi,* 89 L. ed. Adv. Op. 1435, 65 S. C. Rep. 1483, 13 L. W. 4576, the Railway Mail Association questioned several sections of the New York Civil Rights law which prohibited labor organizations from denying membership by reason of race, color or creed. The association's constitution limited its membership to Caucasians and Indians. The association claimed that it was not a labor organization, and that the sections if applied would violate the 14th Amendment and conflict with the federal power over post offices and post roads. The New York Court of Appeals rejected these contentions, and on appeal the Supreme Court of the United States on June 18 affirmed the decision.

In *Morris* v. *Williams,* 149 Fed. 2d 703 (CCA No. 8, June 19), the court held that school authorities had discriminated against Negro school teachers by favoring white teachers with reference to wage scales. The court quoted with approval a statement by the late Justice Harlan that the constitution is "color blind," and said that the evidence does not sustain the claim that substantially all Negroes are less capable than whites. The injunction was, however, refused, because the matter had been settled amicably while the suit was pending.

The 4th CCA on April 17 obliged a privately managed Maryland free public library substantially supported by the city to allow Negroes admission to its training classes. This was under the 14th Amendment. *Kerr* v. *Enoch Pratt Free Library,* 149 Fed. 2d 212.

In two cases the CCA of the District of Columbia considered restrictive covenants against Negro use and ownership of real property. In one case the court refused to enforce the covenant because the character of the neighborhood had changed. In the other case the covenant was enforced somewhat unwillingly by three judges, one dissenting and one concurring on the ground of precedent only. *Mays* v. *Burgess; Gospel, etc., Association* v. *Bennett's,* 147 Fed. 2d 869, 878 (January 29). In the Mays case it appeared that there had been Negro penetration adjoining the property on one side, but in the other direction there was an unbroken white community, and therefore the injunction was granted. In the Gospel case a sale to a Negro was held unobjectionable, provided the Negro did not thereafter lease it to another Negro, where there was indication of Negro penetration into the neighborhood.

California had some interesting Negro decisions. In *James* v. *Marinship Corporation,* 155 Pac. 2d 329, (Supreme Court, December 1944) a labor union enjoying a monopoly, was not allowed to have court enforcement of a closed shop agreement because it excluded Negroes from membership. The court said that the fact of the monopoly gave a public interest, and under such circumstances a labor union cannot adopt the membership standards of a golf club. The auxiliary membership offered by the union was disapproved as discriminatory.

The Bautiste case mentioned under *Labor* above shows the same point of view.

In *Blakeney* v. *Clark, etc. Corp.,* 13 L. W. 2676 (California Supreme Court, June 4, 1945) the court held that a closed shop union must open its membership to Negroes or forfeit its closed shop privileges; and this is so, whether or not it holds a monopoly of labor in the locality. In *People* v. *Zammora* (152 Pac. 2d 180, October 1944) the district court had reversed the conviction of twelve Mexicans, which had been caused by race prejudice, but in *Ter-*

rell v. *Wells, Swimming Pool* v. *Rodriques,* 182 Pac. 2d 825 (March 1945) refused to order Mexicans admitted to a swimming pool.

The Mississippi Supreme Court in *Griffin* v. *Gulf, etc. R. Co.,* 21 So. 2d 814 (April 23) allowed Negro firemen to preserve seniority rights notwithstanding a decision cutting out their rights made in a dispute between a union and the employer. The court said that a railroad union has the duty of representing impartially all members of its class, hence the court rejected the union's defense that a labor board award had determined the rights of Negro firemen, who are not eligible for union membership, and whose cause was ignored before the board. The court says that the union was trying to plead its own wrong, and that the employer was party to the wrong because it did not advise the board of the firemen's rights.

Administrative Decisions. — The NLRB on June 28 ruled that a union's segregation of Negro and white employes into separate locals is not per se racial discrimination, so as to justify withholding a certificate of the union as the exclusive bargaining unit.

On June 30 the CIO vainly attempted to upset a bargain made by an AFL union which had obtained bargaining rights through a joint committee composed of representatives of the union and of its special affiliate for Negroes.

A railroad's failure to furnish Pullman and dining car service to Negroes on an interstate journey was approved by the ICC on May 8, 1945.

The Fair Employment Practice Committee (FEPC) on Dec. 23, 1944 ordered a munition manufacturer to abolish racial quotas, and to cease from laying off Negroes through a seniority plan not equally applicable to whites; and on February 12 forbade the Kaiser Company to cast off Negro employes on the ground that a closed shop union in this ship building company refused to clear the Negroes in the effort to make the Negroes set up an auxiliary lodge.

The FEPC also castigated a seamen's union for discrimination against Negroes. The union said "We do not mix," and tried to set up a system whereby Negroes would be limited to being stewards in ships with all Negro stewards. The commission avoided saying whether segregation of itself was a violation of executive orders, but disapproved in this case as being merely an excuse for obstructing access of Negroes to a vital occupation.

(10) Taxation.—The reports and legal magazines were replete with tax decisions, though, of course, most of these cover questions of detail important in the interpretation of a particular tax statute, but of little permanent interest because the statutes are so readily and frequently changed. There were, however, some decisions of real importance.

The Supreme Court of the United States in *Ford Motor Co.* v. *Indiana,* 89 L. ed. Adv. Op. 372, 65 S. C. Rep. 347, 13 L. W. 4115, on January 8, dismissed a taxpayers' suit against a state department because the state had not consented to the suit. The attorney general of the state could not waive this requirement where the state statutes make it plain that state procedure for obtaining refund is in effect a procedure against the state, although nominally against officials.

The federal government does not have to recognize an Oklahoma statute setting up an elective community property arrangement between husband and wife. *Commissioner* v. *Harmon,* 89 L. ed. Adv. Op. 71, 65 S. C. Rep. 103, 13 L. W. 4016 (Nov. 20, 1944). The court interpreted the Oklahoma statute as merely affecting an assignment of income; not imposing the Spanish law community property system, but merely permitting contracts between husband and wife as to how their property should be held. Two judges dissented. They objected to permitting the community property system to become the vested interest of only a few states.

On the same day in *McDonald* v. *Commissioner,* 89 L. ed. Adv. Op. 78, 65 S. C. Rep. 96, 13 L. W. 4013, the court held that amounts contributed for campaign expenses by a judge seeking re-election are not deductible under the income tax law. The expenditure was "the price paid for an active share in the hazards of popular elections," and the expense was not incurred in "carrying on" the "business" of judging. Four judges dissented saying that the expense was incurred in connection with the production and collection of income.

A different method of state assessment of property within a certain classification is not a denial of equal protection under the 14th Amendment. This was held on February 26, *Charleston, etc. Association* v. *Alderson,* 89 L. ed. Adv. Op. 621, 65 S. C. Rep. 624, 13 L. W. 4230.

The intangible property of the complaining taxpayers was assessed at 100 per cent while other intangible property was assessed to other taxpayers at a lower rate. The court said that the complaining taxpayer could not make out a case under the 14th Amendment unless he proved that his property is actually worth less than the assessed value; and if one taxpayer claims that another owns under-assessed property, he must prove that such property is worth more than its assessed value. The decision seems to allow different rates of assessment on the same class of property under the general property tax within a certain class of taxpayers, provided the difference is based on a substantial reason. Only one judge dissented.

The problem of state taxes under federal housing projects (AMERICANA ANNUAL 1945, p. 424) was settled on January 2 by the Supreme Court in *City of Cleveland* v. *U.S.,* 89 L. ed. Adv. Op. 270, 65 S. C. Rep. 280, 13 L. W. 4090. The court upheld the exemption on the ground that the Federal Housing Act sets up a policy to promote the general welfare of the nation by using its funds and credit to help local units by improving housing conditions. The clause in the act exempting the property of the housing authority from taxation is valid. Congress may exempt property of the United States or any of its agencies from state taxation in carrying out the purposes of federal legislation. An injunction against state tax officials was allowed on the ground that they were enforcing state laws "embodying a statewide concern and in the state's interest."

The California Supreme Court denied constitutionality to a provision in the California sales tax law whereby a tax was levied on oil sold by a company in California to a foreign country and delivered to a ship of that country in a California port. This clause amounted to the levying of taxes on exports. *Richfield Oil Corp.* v. *State Board,* 155 Pac. 2d 1 (Dec. 30, 1944). (Rehearing granted, January 29.)

Notwithstanding the Clifford case which

taxed trust income to the grantor in so far as he retains a personal benefit for himself or his dependents, the CCA in the 10th Circuit ruled in *Hall* v. *Commer*, 150 Fed. 2d 304 (July 2) that the retaining by a grantor trustee of an irrevocable trust of a discretion to distribute, withhold, change shares, invade the principal, etc., is not the retaining of a taxable personal interest in the trust. The mere power to "deal with it as if it were his own" does not mean he can use it for himself. He is merely safeguarding investments which his own acumen accumulated.

The expectation that state taxes with different rates on resident and nonresident insurance companies would be invalidated as a result of the decision last year by the Supreme Court in the Southeastern Underwriter's case (AMERICANA ANNUAL 1945, p. 411) was confirmed by court decisions in several states; for example, Indiana,—with at least one lower court (in Michigan) ruling to the contrary. Statutes solved the problem in many states by equalizing the taxation (see *State Legislation* above).

The Supreme Court of Connecticut subjected to the state's inheritance tax the proceeds of a $40,000 life insurance policy issued to a person 83 years of age for a single premium payment of over $37,000, in connection with an annuity contract, with one judge dissenting. The court decided that the policy was "not one of true life insurance." Literally, it is life insurance, but practically the actual situation was that the insured person made a payment of $44,000 in consideration of a promise to pay her an annuity of $83 per month and to pay $40,000 to her beneficiaries. There was no substantial risk assumed by the insurance company. *Day* v. *Walsh*, 42 Atl., 2d 366 (April 3).

Both Nebraska's and North Dakota's oleomargarine taxes were held unconstitutional as an unreasonable classification of property for taxation. "There is no difference between imported cottonseed oil and domestic cottonseed oil," said the Nebraska Supreme Court in May, in *Thorin* v. *Burke*, 18 N. W. 2d 664. The Nebraska statute taxed at a higher rate, margarine made from imported fats and oils. The district court in North Dakota took a similar stand in September, saying that the law was not a bona fide revenue measure but an economic regulation discriminating in favor of the dairy interests.

Property forming a part of a city owned and operated transit system is taxable, although the constitution exempts "public property used exclusively for any public purpose." This particular property is being used by the city in its proprietary capacity. *Zangerle* v. *Cleveland*, 61 N. E. 2d 720 (June 6).

Embezzled funds do not constitute a part of the embezzler's taxable gross income. *Wilcox* v. *Commissioner*, 148 Fed. 2d 933 (CCA No. 9, March 30).

The prize annually awarded by the American Bar Association for a legal essay is a gift exempt from taxation. *McDermott* v. *Commissioner*, 150 Fed. 2d 585 (CCA D.C., June 18).

Traveling expenses "while away on business from one's home" means traveling expenses from the place where one in fact resides. *Flowers* v. *Commissioner*, 148 Fed. 2d 163 (CCA No. 5, March 23). Here the taxpayer had home, law office, church, club affiliations and voting residence, in the city where he was born. He was also general counsel of a railroad company which had its principal office elsewhere.

The realty of a nonprofit organization operating a hospital service plan is taxable because the organization is really engaged in insurance and not merely in securing paying patients for the hospitals. *Hospital Service Association* v. *Evatt*, 57 N. E. 2d 928 (Oh. Supr. Ct., Nov. 22, 1944).

(11) **The War.**—The only war decisions of permanent interest have already been cited under various heads above. A few other cases should be mentioned for historical interest.

On January 2 in *Singer* v. *U.S.*, 89 L. ed. Adv. Op. 262, 65 S. C. Rep. 282, 13 L. W. 4086, the court interpreted Section 11 of the Selective Service Act to include all conspiracies to violate the act whether or not force or violence might be involved. Convictions for conspiracy to aid one of the conspirators to evade service were affirmed. The only question before the court was whether the conspiracy was criminal if no overt act had taken place. The majority opinion concedes that "the matter is not free from doubt" and four judges dissented. One gets the impression that the majority of the court may have made some poor law in the effort to back up the then existing law, and that the decision might have been different had the case arisen after the close of hostilities.

Some months later on June 11 the court in *Kegan* v. *U.S.*, 89 L. ed. Adv. Op. 1314, 65 S. C. Rep. 1203, 13 L. W. 4534, remanded the conspiracy case against the Bund on a technical ground as has already been noted above under *Constitutional Law*.

The district court in Eastern Pennsylvania on July 26, 61 Fed. Sup. 570 in *Pfeiffer* v. *Garvey*, interpreted the Soldiers' and Sailors' Civil Relief Act as not protecting a service man and his wife who were merely guests in premises leased by the sailor's aunt. The court says that the persons entitled to be protected in their occupancy of premises must have "at least an obligation to pay rent."

The same act was interpreted in *U.S.* v. *Alberts*, 59 Fed. Sup. 298 (DC Wash., March 13) to extend the period of redemption on real property beyond the period fixed by a state statute. The court said that Congress had the war power to extend these time limits in order to protect men in the service from the fear of loss of their property.

A circuit court in Kansas refused to eject a soldier's wife in a proceeding naming her as the tenant.

The federal district court in Western New York on February 17 in *U.S.* v. *Williams*, 59 Fed. Sup. 300, held that a Wac is a soldier in the military service with respect to a federal statute against concealing and harboring deserters. The court said that Wacs are in potential combat service just as much as any male soldier and are component members of the army.

A legal development of the year which laid the foundation for far-reaching developments was the agreement between the four Allied powers participating in the European war with reference to the international military tribunal for trying of the major war criminals of the European Axis. The tribunal is composed of one member and an alternate from each of the four signatories.

All four signatories must be represented at any session of the tribunal; decisions ordinarily are to be made by a majority vote. Crimes are defined in three categories: (1) crimes against peace,—wars of aggression in violation of trea-

ties; (2) war crimes,—violations of the laws or customs of war, such as murder, slavery, killing of hostages, wanton destruction; (3) crimes against humanity,—for example, murder of civilian populations, prosecutions.

The official position of accused persons in high positions is not to free them from responsibility or mitigate their punishment, but acting under orders may be considered in mitigating the punishment of subordinates.

The tribunal has the power, after notice and hearing, to determine that any group or organization was a criminal organization. In that case membership in the organization is ground for conviction by other courts of the signatories; and these courts may also try and punish for crimes other than membership in a criminal organization, persons convicted by the tribunal.

The tribunal is to draw up its own rules. The agreement makes, however, certain specifications "in order to insure fair trial," for example, form, language and copies of indictment and documents relied upon; right of the defendant to offer a defense and make an examination; language of the trial; right to counsel; right to present evidence and cross-examine witnesses.

Each signatory is to appoint a chief prosecutor and these act together as a committee to arrange for procedure and assignments. The duties of the prosecutors are specified.

The tribunal is vested with powers to summon witnesses, interrogate defendants, require the production of documents, administer oaths and appoint subordinate officers.

Trials are to be confined strictly to an expeditious hearing of the issues; strict measures are to be taken to prevent delay and rule out irrelevancies; and power to deal with contumacy is granted. The tribunal is not to be bound by technical rules of evidence, but is to have full right to rule upon relevance. The tribunal is to take judicial knowledge of facts commonly known, and of official documents and reports of the United Nations. The order of procedure for trials is carefully set forth. All documents and proceedings are to be furnished and conducted in English, French, Russian and the language of the defendant, and translations into other languages are to be made where necessary. The permanent seat of the tribunal is to be at Berlin. The first trial was held at Nürnberg, and subsequent trials are to be at such places as the tribunal may decide.

The judgment as to guilt or innocence is to give the reasons, and is to be final, not subject to review. The tribunal may impose death or such other punishment as it deems just, and may deprive the convicted person of stolen property. The Control Council for Germany may reduce sentences or extend leniency, and is to report to the committee of prosecutors additional evidence discovered against convicted criminals. Expenses of the tribunal and of the trials are to be charged against funds allotted for maintenance of the Control Council. See also WAR CRIMES TRIALS.

(12) World Court.—A World Court was included in the agreement among the United Nations meeting at San Francisco in furtherance of the Dumbarton Oaks agreement. During the months between Dumbarton Oaks and San Francisco the attention of public-spirited lawyers throughout the world was focused on the subject. In the United States and Canada the American Bar Association in co-operation with the Canadian Bar Association held a series of 25 conferences of lawyers throughout the two nations, and in addition eight public meetings were held.

The consensus of lawyers' opinion thus obtained was collated and put into the form of a statement approved by both bar associations, translated into French, Russian and Spanish, and submitted to the San Francisco Conference (April 25-June 26). The opinion of the lawyers was that the International Court of Justice should form an integral part of the United Nations Organization; should be the continued Permanent Court of International Justice with adaptations necessary because of the interlocking of the League of Nations with the new organization; that every effort should be made to extend the compulsory jurisdiction of the court; and that the scope of international law should be broadened and its authority strengthened.

The statute of the International Court of Justice, which is included in the Charter of the United Nations, varies from the recommendation of the two bar associations in setting up a new court instead of continuing the Hague Tribunal which has long been in existence, and does not enlarge the jurisdiction of the court, as the lawyers hoped it would, but otherwise substantially follows the recommendations of the bar. All members of the United Nations organization are automatically to be parties to the new statute. States not members of the United Nations may be admitted later as parties to the new statute on conditions not yet prescribed. The new court will start with at least 50 parties. The present statute has 48 adherents.

The court is to be composed of a body of 15 independent judges, no two of whom may come from the same state. After the system is established, their terms of office are nine years with re-election permitted, staggered so that the terms of five judges expire at the end of every three years. The judges are not to exercise political or administrative functions or engage in other professional occupations, and, of course, are not to appear as counsel in any case or participate in the decision of any case in which they have previously taken part. They enjoy diplomatic privileges and amenities, and, of course, are duly sworn. Any judge may be excused from participating in a particular case for cause.

The members are to be elected by the General Assembly and Security Council from a list of persons nominated by the national groups in the long-established Permanent Court of Arbitration. Acting as a nominating committee for judges of The Hague Tribunal has long been substantially the only remaining function of these national groups. Those nations not represented in the Permanent Court of Arbitration are to set up special nominating groups as has been the case in the past.

The procedure for nominating and electing members, and filling vacancies and dismissing members, of the court is carefully detailed in the statute. The conditions under which a state as a member of the United Nations may participate in the election of members of the court may be laid down by the General Assembly of the United Nations upon recommendation of the Security Council. The court allocates its officers and may appoint subordinates. The seat of the court is at The Hague, but it may exercise its functions elsewhere. The president and

register must reside at The Hague. The court is to remain in session substantially all the time, but members of the court are entitled to periodic leave. The full court is to sit except where otherwise expressly provided, a quorum being nine judges. The court may, however, from time to time form "chambers" of three or more judges for dealing with particular categories of cases such as labor cases and transit companies, or with particular cases. The judgment of these chambers shall be considered as rendered by the court. These chambers may sit elsewhere than at The Hague. A special chamber of five judges is to have the power to determine certain cases by summary procedure.

Judges of the nationality of each of the parties retain their right to sit in the case, but in such case any other party may choose a judge for the cause, preferably from among the eligible list of persons nominated for judge. If the court includes no judge of the nationality of the parties, all parties may choose a judge as above stated. Such judges *ad hoc* shall take part in the decision on terms of complete equality with their colleagues.

The statute provides for salaries and allowances, free from all taxation, to be paid by the United Nations in such manner as shall be decided by the General Assembly.

The jurisdiction of the court remains substantially as in the present statute. The optional conferring of obligatory jurisdiction is retained despite the desire of a large majority of the states for broadening jurisdiction. The statute goes to the limits of language to retain for the new court all the jurisdiction conferred on the existing court by treaties, agreements and declarations. The powers and functions of the court as to advisory opinions are retained. These opinions may be requested by assembly, security council, and to a limited extent, by other bodies and agencies.

Charter provisions as to the court cannot be amended so as to abolish or impair it over the objection of any one of the Big Five. The provision as to amendment fill a hiatus in the existing system. A special chapter in the statute provides that the procedure laid down for amending the charter shall be followed for amending the statute subject to the possibility that nonmember states which are parties to the statute may be permitted to participate. The court itself may propose amendments.

As to the competence of the court, only states may be parties to cases. The court may request and receive from public international organizations relevant information. Whenever the construction of the charter of such an organization or of an international convention is in question the organization concerned shall be notified. When a state which is not a member of the United Nations is party to a case, the court shall fix the amount which that party is to contribute towards expenses unless such state is already bearing a share of the expenses of the court.

Article 36 specifies that the jurisdiction comprises all cases referred to it by the parties and all matters provided for in existing charters, treaties, and conventions. Parties to the statute may recognize as compulsory in relation to any other state accepting the same obligation, the jurisdiction of the court in all legal disputes concerning treaty interpretation, questions of international law, the existence of facts which would constitute a breach of international obligation, and reparations for breaches thereof. Such declarations may be made unconditionally or on reciprocal conditions. Such declarations as have already been made under the previous statute and which are still in force shall be deemed acceptances of compulsory jurisdiction in accordance with their terms. The court itself shall determine whether it has jurisdiction in the event of dispute.

The court shall decide in accordance with international law disputes submitted to it, and apply international conventions, international custom, the general principles of law recognized by civilized nations; and (as subsidiary) judicial decisions and teachings of publicists. The court may nevertheless decide a case according to substantial justice if the parties agree thereto.

As to procedure, the official languages shall be French and English, either language to be used in accordance with the agreement of the parties. In the absence of agreement each party may use the language preferred, and the court shall decide in both languages. The court may authorize a language other than French or English.

Detailed provisions are made regarding procedure and orders, including default proceedings.

The court is to make all decisions in private, deciding by majority of the judges present with the presiding judge having a casting vote. Judgments shall state the reasons on which they are based, and contain the names of the judges who have taken part in the decision. Dissenting and separate opinions are permitted. The decision of the court has no binding force except between the parties and in respect to that case, but is final and without appeal. Judgments may, however, be revised by the court for cause within ten years. Intervention by other interested states may be permitted, and other states shall be notified when the construction of a convention in which they are interested is concerned.

The existing court of international justice will continue to exist, but will gradually fade out. No elections have been held since 1939, and the terms of the eleven judges now in office have expired. Presumably the states which are parties to the former court will move to liquidate it, and there is not likely to be any occasion for reactivating it before its demise.

Immediately on the adoption by the United States of the San Francisco document, Senator Morse of Oregon offered a resolution in the Senate recommending that the president make a declaration accepting the compulsory jurisdiction of the court over legal disputes. Adopting this resolution would complete the turnabout of this nation from the isolationist position which was taken when Woodrow Wilson's recommendations at the end of the First World War were discarded by the Senate.

Courts and law are going to mean, even to American lawyers, more than merely domestic problems. The World Court and world law are bound to be subheadings in future articles on law in AMERICANA ANNUALS.

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LEA, Luke, American politician, banker, and newspaper publisher: b. Nashville, Tenn., April 12, 1879; d. there, Nov. 18, 1945. A powerful political figure in Tennessee for more than two decades, Colonel Lea was the leader of a daring expedition that attempted to kidnap the exiled German kaiser from Holland in December 1918.

Colonel Lea was graduated from the University of the South in 1899, received his M.A. degree there the next year, and his LL.B. from Columbia University in 1903. He began practice of the law in Nashville in 1903; organized the Nashville *Tennessean* four years later; and was elected United States senator from Tennessee in 1911. During the First World War, he served as commanding officer of a field artillery regiment of the 30th Division. After the Armistice, a group of eight men from this division crossed the border from Germany into the Netherlands and made their way to Amerongen, at that time the haven of Wilhelm II. They negotiated for an interview, but their lack of credentials caused suspicion, and the exploit to seize Wilhelm and turn him over to an Allied military court proved unsuccessful. The incident caused Holland to complain that its neutrality had been violated, but despite an army investigation, none of Colonel Lea's group was punished. Colonel Lea later became an important newspaper publisher and an associate of Rogers Caldwell, investment bankers. In the fall of 1930, Caldwell and Company failed, bringing down several banks with it, and resulting ultimately in the appointment of receivers for the newspapers. The tying up of state funds totaling several millions in the closed banks led to an investigation and to the indictment of Colonel Lea and his son, Luke Lea, Jr., in North Carolina and Tennessee. The two were tried in North Carolina in 1931, and were convicted of defrauding the Central Bank and Trust Company, one of their interests, of more than $1,300,000. Colonel Lea was paroled after he had served slightly less than two years of his 6- to 10-year sentence. Meanwhile, the Tennessee charges against the two had been dropped, and in 1937 the State of North Carolina issued a full pardon, restoring him to full civil status.

LEAD. The severe manpower shortage at the mines was the main reason for the continued reduction in the nation's output of lead in 1944, according to the United States Bureau of Mines. Imports of refined lead—a ready source of immediately usable material—were lower, consumption was maintained at a high level, and government stocks of refined lead were steadily reduced to a point considered below the margin of safety. At the end of 1944, a sweeping revision of existing General Preference Order M-38 was announced by the War Production Board to restrict further consumption and thereby help to ease a situation which had grown critical. The 1944 mine production of 416,861 short tons of recoverable lead (including that made into lead pigments) in the United States and Alaska was 8 per cent below the 453,313 tons produced in 1943. The total value of the lead produced in domestic mines in 1944, calculated on the basis of 8 cents a pound, amounted to $66,697,760, against the 1943 production valued at $67,996,950 calculated at 7½ cents a pound. The southeastern Missouri district continued to be the largest lead-producing area in the United States, supplying 41 per cent of the total output.

LEASE-LEND. See LEND-LEASE.

LEBANON. A republic extending for 120 miles along the eastern coast of the Mediterranean, bounded on the north and east by Syria, and on the south by Palestine. It has an area of slightly over 4,000 square miles, and a population (composed mainly of Christian and Moslem Arabs) estimated in 1945 at about 1,000,000. The capital is Beyrouth (Beirut), pop. 200,000. On Sept. 21, 1943, Bechara al-Khoury, a Maronite Christian, was elected president of the republic by the Chamber of Deputies, and he nominated to the premiership Riad Solh, a Moslem, who was later succeeded by Abdul-Hamid Karameh, another Moslem. The flag of Lebanon, adopted Dec. 2, 1943, consists of bands of red, white, and red, with the green cedar—symbol of the country from biblical times—in the center. At Beyrouth are a French university, with about 1,000 students, and an American university, with about 1,500. Silk production and wine making are the principal industries, but many textile projects have developed as a result of the Second World War. Agricultural crops include wheat, barley, corn, sorghum, and oats; other products of the soil are tobacco, cotton, sesame, olives, olive oil, and citrus fruits. Iron and coal mines are worked in Lebanon, and there are indications of petroleum. Beyrouth, the principal port for both Lebanon and Syria, is well served by railroads, motor highways, and air transport.

While the independent status of Lebanon (as of Syria) had been recognized in 1941 by Gen. Charles de Gaulle's French Committee and by Great Britain following the expulsion of pro-German agents and sympathizers, Lebanon remained, juridically, a mandate entrusted to France by the League of Nations. However, as a result of the country's insistence on its freedom and independence, Gen. Georges Catroux, on behalf of the French National Committee, transferred to Lebanon (as it did to Syria) all legislative and administrative functions, effective from January 1, 1944, and early in September of the same year both republics were accorded full recognition by the Soviet Union. A like step was taken by the United States in the same month (September 19), with President Roosevelt's appointment of George Wadsworth as United States minister to Lebanon and Syria. Lebanon has accredited ministers to Paris, London, Washington, and Cairo, and by the middle of 1945 had been recognized by a score of powers.

During January 1944 a Lebanese delegation participated in discussions at Alexandria by Arab leaders representing several countries, looking toward unification of policies. However, on Feb. 3, 1945, President Bechara al-Khoury made it clear in a press interview at Beyrouth, that Lebanon intended to retain full independence in preference to joining a greater Syria or any other larger entity of Arab peoples. In March 1945, Lebanon joined the Arab League (q.v.). On April 12 its representative signed the United Nations Declaration, and late in the same month Lebanon took part in the San Francisco Conference as a full-fledged independent and sovereign member of the United Nations. In May, a series of crises which had begun in November 1943 between the Levantine states (Lebanon and Syria) and France, culminated in armed clashes, involving British intervention in Syria (q.v.). On July 7 the French agreed to release Levantines in the French army in Lebanon and Syria, permitting them to be incorporated into the national armies of the Levantine republics. On July 15 an agreement was announced from Beyrouth under which subsidiaries of the Standard Oil companies of New York and of New Jersey are to construct and operate two oil refineries near Tripoli, terminal point of the northern branch of the internationally-operated pipe-line from Kirkuk, in Iraq, the southern branch of

which runs to Haifa, in northern Palestine. On August 21 it was reported that the Lebanese cabinet had resigned, and that Sami Solh, a Moslem (cousin of Riad Solh, who as premier in 1943 had urged complete independence for Lebanon), had been asked to form a new cabinet.

LEE, Willis Augustus, Jr., United States naval officer: b. Natlee, Ky., May 11, 1888; d. Casco Bay, Me., Aug. 25, 1945. Vice Admiral Lee's interception of a Japanese convoy en route to an all-out assault against embattled marines on Guadalcanal, Nov. 14–15, 1942, was one of the pivotal victories of the American Navy in the Pacific war. It was at a crucial moment in this struggle between superior Japanese forces and American task groups of relatively minor strength that he sent out the message: "Stand aside, I'm coming through," and his task force sank a Japanese battleship and three cruisers.

Known to his intimates as "Ching" Lee, Admiral Lee entered the navy in 1904 and was graduated from the Naval War College. He was commissioned captain in 1936 and rear admiral in 1942. Earlier in the war he had served as assistant chief of staff to the commander in chief of the United States Fleet. In February 1942 he was made commander of a task force in the Southwest Pacific. Together with Admiral Marc A. Mitscher, he directed the heavy attacks on Truk and other strong points in the Carolines in the spring of 1944, and in the fall of that year he was second in command to Admiral Halsey in the decisive blows handed the enemy by the Third Fleet in the Formosa and Ryukyu areas. For two months before his death, Admiral Lee had been on Atlantic duty on a special top-secret tactical assignment.

LEEWARD ISLANDS. A group in the West Indies, southeast of Puerto Rico, constituting a British colony. The aggregate area of the islands is 422 square miles, and the population is estimated (1944) to number 101,146. Administratively, the colony comprises four presidencies, as follows:

Presidency	Square miles	Population	Capital
Antigua[1]	170.5	42,789	St. John's (10,000)
St. Kitts-Nevis[2]	152	38,305	Basseterre (8,000)
Montserrat	32.5	13,332	Plymouth (2,000)
British Virgin Islands	67	6,720	Road Town (700)
Total	422	101,146	

[1] The island of Antigua (108 square miles) and its dependencies, Barbuda (62 square miles) and Redonda (1 square mile).

[2] St. Kitts, or St. Christopher (68 square miles), Nevis (50 square miles) and dependent Anguilla (34 square miles).

A governor (Sir Leslie Brian Freeston appointed Oct. 5, 1943) is assisted by a federal Executive Council of 12 members (6 officials and 6 unofficials) and a general Legislative Council with a membership of 8 officials and 9 elected unofficials (Antigua and St. Kitts-Nevis with 3 each, Montserrat with 2, and the British Virgin Islands having 1). For purposes of local government, there are also executive and legislative councils (the latter partly elected) for each of the presidencies except the Virgin Islands, for which the governor is directly responsible. The Windward Islands (q.v.) and the Leeward Islands have joint judiciary and police services. St. John's, capital of the Antigua presidency, is also the seat of the federal government of the colony. Revenue of the colonial government in 1943 amounted to £502,867, and expenditure was £450,287. There are 103 schools throughout the colony, some administered by the government and others by religious denominations, the average attendance being 14,000 pupils. See below for particulars of each of the presidencies.

Antigua.—This is the largest of the presidencies and comprises the island of Antigua and the two dependent islands of Barbuda and Redonda. An administrator, appointed by the governor of the colony, is assisted by a nominated Executive Council and a Legislative Council of 10 members, 2 being officials and 8 unofficials (3 nominated and 5 elected). St. John's is the capital and principal port. In 1940 the United States obtained a 99-year lease for a naval base near Parham Harbor. Revenue of the presidency in 1943 was £219,559, and expenditure amounted to £200,974; the public debt was £79,381. Sugar is the principal crop on Antigua, and cotton on Barbuda; tomatoes, pineapples, and other fruits are also cultivated on a commercial scale, and molasses is manufactured. Sugar production has suffered a setback, the output for Antigua and St. Kitts-Nevis together in 1945 being estimated at only 48,600 tons. The 1945 crop of sea-island cotton on Antigua was put at 289 bales (of 400 pounds each) from 1,111 acres under cultivation. Total exports of the Antigua presidency in 1943 were valued at £343,255, and imports at £464,592. Sugar companies operate 48 miles of railroads. The presidency is served by Pan American Airways.

Saint Kitts (or SAINT CHRISTOPHER)**-Nevis.**—This presidency includes the dependent island of Anguilla. Basseterre, a seaport on St. Kitts, is the capital, and Charlestown is a port on Nevis. An administrator, appointed by the governor of the colony, is assisted by a nominated Executive Council and a Legislative Council of 11 members, of whom 3 are officials and 8 unofficials (3 nominated and 5 elected). In 1943 the revenue of the presidency amounted to £212,893, and expenditure was £183,962; the public debt was £31,822. The Incorporated Chambers of Commerce of the British Caribbean met at Basseterre in May 1945 to discuss a proposed customs union and encouragement of the tourist trade and commerce with Canada. The principal product of St. Kitts is sugar; of Nevis, cotton; and of Anguilla, salt. There was a reduction in sugar production in 1945 (see *Antigua*, above). The presidency's crop of sea-island cotton in 1945 was put at 1,457 bales (of 400 pounds) from a total of 4,550 acres under cultivation (St. Kitts, 625 bales, 1,500 acres; Nevis, 825 bales, 3,000 acres; Anguilla, 7 bales, 50 acres). Exports of the presidency in 1943 were valued at £530,438, and imports at £444,365. Railroads on St. Kitts, with an aggregate length of 36 miles, are operated by sugar companies. St. Kitts has 60 miles of highways, 37 miles having a macadam surface. British West Indies Airways provides a service linking St. Kitts with Trinidad, Jamaica, and Barbados.

Montserrat.—The most healthful and scenic of the four presidencies is Montserrat. The capital and chief seaport is Plymouth. A commissioner, responsible to the governor of the colony, heads the government of the presidency; he is assisted by a nominated Executive Council and a Legislative Council, some members of the latter being elected. The 1943 government revenue was £52,661 and expenditure £51,478. Cotton and

limes, and their products, are the principal crops; Montserrat is one of the world's chief producers of lime juice. The 1945 crop of sea-island cotton (from 3,500 acres) was estimated at 1,452 bales (of 400 pounds). The total value of exports in 1943 was £13,139, and imports amounted to £78,965.

British Virgin Islands.—Least populated of the presidencies, this group comprises some 30 islands, the largest of which are Tortola (21 square miles), Virgin Gorda, and Anegada. Road Town, on the southeast of Tortola, is the capital and principal port. There is no legislative council; a commissioner, assisted by a nominated Executive Council, administrating the presidency under direction of the governor of the colony. Revenue in 1943 totaled £17,755, and expenditure amounted to £13,873. Sugar cane, cotton, and coconuts are cultivated, but livestock constitutes the export of greatest value. In 1943 total exports reached £37,146, and imports were valued at £30,026. During 1941–45, £37,027 was granted to the presidency by the British government for the betterment of social and agricultural conditions. See also BRITISH WEST INDIES.

LEGISLATION, Federal and State. See LAW, *Sections 7 and 8.*

LEHMAN, Irving, American jurist: b. New York City, Jan. 28, 1876; d. Port Chester, N.Y., Sept. 22, 1945. The brother of the former New York governor, Herbert H. Lehman, Chief Justice Irving Lehman, of the New York Court of Appeals, had served as a member of New York's judiciary for 37 years and was noted for his liberal decisions.

Judge Lehman received his B.A. degree in 1896, his M.A. degree the next year, and his LL.B. degree in 1898, all from Columbia University. He practiced law in New York from 1898 to 1908, when he was elected to the state supreme court for the term 1909–22. In 1923 he was re-elected, upon nomination of both the Republican and Democratic parties, for the state court of appeals. He was re-elected again in 1937 with bi-partisan endorsement, and when in 1939 he was elected as chief judge of the court of appeals in place of Frederick E. Crane, who had retired, he earned the American Labor Party's nomination as well.

The reasoning set forth in an opinion written by Judge Lehman in 1928, which called for voiding an injunction obtained by the Interborough Rapid Transit Company in a dispute with its employees, was largely responsible for shaping New York's labor policy for many years. His opinion upholding the validity of the statute that required owners of old-law tenements to make their buildings conform to improved standards gave an impetus to better housing in New York City. In the case of Carmen Barber, a member of the Jehovah's Witnesses who had been convicted for distributing and attempting to sell religious materials without a license, he held that the state was not bound by a contrary decision of the United States Supreme Court limiting the scope of guarantees of religious freedom in the federal Constitution. Judge Lehman was very active in Jewish philanthropic work and in the improvement of Jewish educational institutions.

LEMONS. See CITRUS FRUITS.

LEND-LEASE. Victory over Germany and Japan brought to a close the lend-lease program which began in March 1941 and which contributed so much to the winning of the war. Negotiations with the countries which had received lend-lease aid were begun immediately for the sale to them of lend-lease goods then on hand or in process of delivery.

The Lend-Lease Act became law on March 11, 1941. Under the act the president was empowered to provide goods and services to those countries whose defense he deemed vital to the defense of the United States.

From March 11, 1941 until May 2, 1941 a presidential liaison committee headed by Maj. Gen. James H. Burns conducted lend-lease affairs. It was succeeded by the Division of Defense Aid Reports. With the expansion of operations the Office of Lend-Lease Administration was created on Oct. 28, 1941 under Edward R. Stettinius, Jr. On Sept. 25, 1943 the president consolidated the country's foreign economic operations in the Foreign Economic Administration and transferred to it all lend-lease functions. Leo T. Crowley was appointed administrator. The Foreign Economic Administration was abolished on Oct. 20, 1945 and lend-lease functions were transferred to the newly established Foreign Economic Section in the Department of State.

Procurement of lend-lease supplies and services was handled by the War and Navy Departments, the Treasury, the Department of Agriculture, the Maritime Commission and the War Shipping Administration. By utilizing the established government agencies it was possible to avoid duplication, achieve standardization in allied war goods, and effect savings in procurement. The Foreign Economic Administration helped to formulate lend-lease programs in cooperation with United States government departments and the lend-lease countries, translated the programs into statements of requirements, issued procurement instructions, maintained records, and prepared reports on various phases of lend-lease operations. To Sept. 1, 1945 the president had submitted 20 reports on lend-lease operations to Congress, as required under the Lend-Lease Act. Detailed information on lend-lease operations can be obtained from these reports.

Approximately 15 per cent of the total war cost to the United States represented the cost of the munitions, industrial and agricultural supplies, shipping and other services that the United States furnished to its allies under the lend-lease system.

Total lend-lease aid from the beginning of the program in March 1941 to the end of September 1945 amounted to $46,040,000,000. Our four principal allies, the British Empire, the USSR, China and France, received about 98 per cent of all lend-lease aid. More than two thirds of the total was supplied to the British in various war theaters and one fourth of the total was supplied to the USSR.

In the months immediately following the passage of the Lend-Lease Act, when Britain was threatened with invasion, most of the goods exported under lend-lease went to the United Kingdom. After the Nazis invaded Russia, lend-lease aid was extended to the USSR. The shipment of vast quantities of lend-lease planes, tanks, and guns, and of industrial, transportation, and communication supplies, aided materially in the successful Soviet offensives that repelled the German invader and prepared for the Soviet advance into Germany from the east, as General Eisenhower's Allied armies drove in from the west. Lend-lease supplies to the Mediterranean area, including Africa and the Middle East, played an

important part in the expulsion of the Nazis from this area and in ending the possibility of an Axis juncture in the East. French, Belgian, Dutch, Norwegian, Polish, Yugoslav, and Greek patriots were equipped with lend-lease arms and supplies and fought alongside Anglo-American forces in the war against Germany.

With the attack upon Pearl Harbor and the German and Italian declarations of war upon the United States, this country faced global war. The stimulus which lend-lease and previous Allied war purchases gave to American industry was rewarding. Conversion to war production was far advanced by the manufacture of lend-lease supplies, and vital industrial experience was gained while America was the arsenal of democracy.

The miracle of American production was soon felt on all the war fronts. In less than one year after Pearl Harbor, the tide of Japanese conquest was turned back at Midway and Guadalcanal, and in less than two years American soldiers, teamed with British and other United Nations forces that had been strengthened by lend-lease aid, invaded North Africa. While great battles were being fought in Tunisia, Algeria, and Italy and on the Soviet Eastern Front and while American forces were storming Jap held islands in the Pacific, the British Isles were being converted into a gigantic invasion base for the liberation of Europe by American lend-lease supplies and British production.

In the Pacific, lend-lease goods and supplies added telling power to the great efforts of Australia and New Zealand, as they developed into important bases in the strategy which defeated Japan. The loss of the Burma Road in April 1942, the Japanese sea blockade of China, and the occupation of Chinese coastal areas seriously hindered the flow of lend-lease aid to China. The Allied supply line was through India. In one of the epic feats of the war, American and Allied pilots flew lend-lease and other supplies from India "over the Hump" to China over the most dangerous air routes in the world.

For the defense of the Western Hemisphere and to aid in the prosecution of the war, the other American republics received $247,000,000 worth of lend-lease goods. This amount was less than 1 per cent of lend-lease shipments to all areas.

Special lend-lease agreements were entered into with France, Belgium and the Netherlands early in 1945 under Section 3 (c) of the Lend-Lease Act. These agreements provided for payment over a period of 30 years for all goods received and not consumed in the war effort.

The following countries received lend-lease aid during the war: British Commonwealth of Nations, Belgium, Bolivia, Brazil, Chile, China, Colombia, Costa Rica, Cuba, Czechoslovakia, Dominican Republic, Ecuador, El Salvador, Ethiopia, France, Greece, Guatemala, Haiti, Honduras, Iceland, Iran, Iraq, Liberia, Mexico, the Netherlands, Nicaragua, Norway, Paraguay, Panama, Peru, Poland, Saudi Arabia, Turkey, Union of Soviet Socialist Republics, Uruguay, Venezuela and Yugoslavia.

Reciprocal lend-lease aid to the United States from lend-lease countries had a dollar value of $6,257,000,000 as of July 1, 1945. This aid included capital installations such as airfields, hospitals, barracks and depots; foodstuffs; petroleum products; and shipping, railroad transportation, and other services. The British Commonwealth provided by far the greatest amount of reciprocal aid, accounting for $5,921,000,000 of the total amount given above.

Master lend-lease agreements were signed with Belgium, China, Czechoslovakia, Ethiopia, Greece, Iraq, Liberia, the Netherlands, Norway, Poland, the Soviet Union, the United Kingdom, and Yugoslavia. Australia and New Zealand accepted the principles of these agreements. The master agreements provide in Articles V, VI, and VII that defense articles transferred under lend-lease that have not been destroyed, lost or consumed and that shall be determined by the president to be useful in the defense of the Western Hemisphere, or otherwise of use to the United States, will be returned and that in the final determination of the benefits to be provided to the United States by the lend-lease country full cognizance shall be taken of all the benefits the lend-lease country has provided to the United States. Article VII states that in the final determination of benefits to be provided to the United States in return for lend-lease aid furnished, the terms and conditions shall be such as not to burden commerce, but to promote mutually advantageous economic relations and the betterment of worldwide economic relations. "To that end, they shall include provision for agreed action between the signatories, open to participation by all other countries of like mind, directed to the expansion, by appropriate international and domestic measures, of production, employment, and the exchange and consumption of goods, which are the material foundations of the liberty and welfare of all peoples; to the elimination of all forms of discriminatory treatment in international commerce, and to the reduction of tariffs and other trade barriers."

The United Nations achieved victory over Germany and Japan through an effective fighting partnership and a system of combined war supply. Through the weapon of lend-lease the full power and might of American resources was brought to bear against the enemy by the millions of fighting men of the United Nations. When victory over Germany and Japan was won, lend-lease had fulfilled its purpose.

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LEY, Robert, German Nazi leader: b. Niederbreidenbach, Germany, Feb. 15, 1890; d. Frankfort-on-the-Main, Germany, Oct. 25, 1945. Chief of the German Labor Front under Adolf Hitler, Dr. Ley was one of the 23 of the Nazis' alleged war criminals awaiting trial in Nuremberg in late 1945, when he committed suicide by hanging himself in his cell on the night of October 25. Ley was largely responsible for the mobilization of German labor to man Nazi war industries. He had a flair for slogan-making, and used to excellent advantage with the German worker such phrases as "strength through joy" and "a German laborer is worth more than an English lord." He was also in charge of Germany's foreign slave labor battalions. As head of the Bund der Auslanddeutsche, organization of Germans living outside the country, he was given some publicity in the United States during the trials of American Nazis. Ley became a member of the Reichstag in 1932; in 1933, he attended the International Labor Conference in Geneva as Germany's delegate. In April 1945, he was appointed head of the Adolf Hitler Volunteer Corps, an organization whose mission it was to wage guerrilla warfare against the enemy. Ley

was taken by American troops on May 16, south of Berchtesgaden.

LEYTE, lā'tā. One of the islands of the Philippine group, lying north of the extreme eastern part of Mindanao, southwest of Samar, and east of Cebu and Bohol; area, 2,785 square miles; prewar population, about 358,000. Leyte ranks eighth in area among the 7,083 islands in the Philippine chain. Tacloban (tä-klō'bän) is the island's principal port and capital. The interior of the island is mountainous. Mt. Lobi in the north is 4,400 feet high. Some of the mountains are extinct volcanoes. Leyte is one of the best cultivated of the Philippines. Crops include cotton, corn, cocoanut oil and copra, abacá, sugar, coffee, and rice. Minerals include gold, silver, lead, iron, and sulphur. Leyte, occupied by the Japanese when they conquered the Philippines in 1942, was invaded by American forces under Gen. Douglas MacArthur on Oct. 20, 1944. The soldiers went ashore in the Tacloban area after a devastating naval and air bombardment, and rapidly extended their positions. General MacArthur went along with his men, thus making good his promise, made two years and six months before, to return to the Philippines. Every able-bodied man who escaped from Corregidor before its surrender participated in the invasion. Lieut. Gen. Walter Krueger commanded the ground forces. Efforts to bring in reinforcements cost the Japanese severely, and led to what up to that time was the most disastrous naval defeat in Japanese history; 58 of her ships were hit, and 24 were definitely sunk on October 24. Though she succeeded in putting some reinforcements ashore, on December 26 (December 25, Eastern War Time) General MacArthur announced that, except for mopping-up operations, the Battle of Leyte was over. He placed Japanese losses in defense of the island at 113,221, of whom 54,338 were counted dead. Only 493 Japanese prisoners were taken. General MacArthur stated that 2,748 Japanese planes were destroyed and 27 Japanese warships were sunk in the battle for the island. American casualties, exclusive of naval personnel, were 11,217, of whom 2,623 were killed; 8,422 were wounded; and 172 were missing. In a supplementary report of June 13, 1945, General MacArthur stated that since December 26 the mopping-up had accounted for 26,000 additional dead Japanese, bringing the total for that campaign to 106,000.

LIBERIA. A Negro republic on the west coast of Africa. The coastline on the Atlantic Ocean, extending northwest from Cape Palmas, the most southerly point, is some 350 miles long, while the inland boundaries of the country are Sierra Leone on the northwest and territories of French West Africa on the north and northeast. In some places the republic extends inland for 150 to 200 miles. The area is about 43,000 square miles, and the population is estimated variously at 1,500,000 to 2,500,000. Settled by freed American slaves in 1822, Liberia was recognized as an independent state in 1847. The capital is Monrovia (pop. 10,000.)

The People.—The descendants of the immigrants from the United States (the Americo-Liberians) number some 12,000, all resident along the coast, and half of them in the capital. Other coastal Negroes, amounting to some 50,000 are also considered civilized; many of them, of the Kru tribal stock, are employed as seamen on sea-going vessels. While the Americo-Liberians are Christians, the Kru Negroes are, for the most part, pagan, and this is true, also, of the other principal tribal stocks, found in the hinterland—the Gissi, Gola, Grebo, Kpuesi and Mandingo—though among the last are found numerous Moslems. Negroes from British and French colonies to the number of about 400 are living on the coast, and there, as well as in the interior, are some 300 European and American missionaries and traders. The principal seaport is Monrovia, and other ports of entry include, from north to south, Robertsport (or Cape Mount), Buchanan (Grand Bassa), River Cess, and Sinoe (Greenville).

Religion and Education.—Practically all of the Americo-Liberians are Protestants, adhering to the Presbyterian, Methodist, Lutheran, Baptist, and Protestant Episcopal denominations. Missions operate about 80 schools; there are also 16 private schools, 5 tribal schools, 2 philanthropic schools, 3 kindergartens, 7 schools maintained by churches, and a further 78 are conducted by the government; these schools have a total enrollment of 15,000, the majority of the population having no educational facilities. The Methodists have a college at Monrovia and an agricultural institute at Kakata; and the government also has a small college at Monrovia with 8 professors and 88 students.

Government.—The constitution of Liberia is modeled on that of the United States, with minor differences. Executive power is vested in a president, elected for an 8-year term, who must be at least 35 years of age and must own unencumbered real estate of a value of not less than $2,500. He is assisted by a Cabinet of 7 members. The bicameral legislature comprises a Senate, the 10 members being elected for six years, and a House of Representatives, the 21 members of the latter elected for 4-year terms. Electors must be of Negro blood and owners of land; in practice, since 1878 they have been a small clique of Americo-Liberians known as the True Whig Party. The president inaugurated on Jan. 1, 1944, was William V. S. Tubman; with his predecessor, Edwin J. Barclay, he visited Washington in May 1943. The municipality of Monrovia, which constitutes a commonwealth district, is appointed by the president. Liberia, as a member of the United Nations, was represented at the San Francisco conference of the United Nations Organization held in April 1945.

Finances.—In 1943 the revenues of the government amounted to $1,429,936, while the expenditures totaled $1,044,647. The external bonded debt stood at $1,193,000 on Jan. 1, 1944, while the internal floating debt was $74,666; these debt items are given in U.S. dollars, which became legal tender in 1942. While there is a Liberian coinage in silver and copper, silver coins of British West African colonies are in more general use.

Defense.—Nominally, all citizens between the ages of 16 and 45 years, capable of bearing arms, are liable for military service. There is a militia organization which, with volunteers and members of the police force, numbers about 10,000 men, as well as a Frontier Force of (1943) some 750 men on long-term enlistments. With defense of the country deemed to be in the interest of the United States, an agreement was reached on March 31, 1942, whereby American troops were stationed in the republic; they assisted in a reorganization of Liberia's defense forces and built airfields. On Jan. 26, 1944, Liberia declared war on Germany and Japan; and on Feb. 18, 1945, the country was praised by United States Secre-

tary of State Edward R. Stettinius, Jr., for its vital contribution to the war effort of the United Nations. Mr. Stettinius cited Liberia's granting of air bases, which "proved invaluable in flying the great air supply route to the Near East, to India, and to China," and the country's greatly increased production of rubber.

Production.—The country's resources have been but little developed. Farms are small and worked in primitive fashion, farming being conducted mostly for domestic consumption. The dense forests are rich in varieties of palm, the products of which form a considerable part of local exports. Tropical fruits are plentiful, and there is a small production of cacao, cassava, coffee, sugarcane and cotton. Cattle, found in the towns and settlements near the coast, are of small stature, and are rarely slaughtered for food; there are a few horses, goats and sheep, the last bearing hair instead of wool. The extensive rubber plantations of the Firestone Company constitute the country's most important industrial activity; the 77,000 acres of matured rubber trees yield upward of 20,000,000 pounds of manufactured latex rubber annually. The plantation managers have done much to raise the standard of living among their workers, notably in the encouragement of rice cultivation and in the improvement in hygienic conditions.

The known mineral resources of the country have yet to be adequately exploited. Alluvial gold mining increased during the war, the value of the output in 1943 equaling that of all other products exported with the exception of rubber. Copper and iron deposits are also worked, though on a small scale. Diamonds have been found in fair quantity, but many minerals still await development.

Foreign Trade.—The principal imports are automobiles and accessories, cotton goods, gasoline and other petroleum products, industrial chemicals, iron and steel containers for Liberian exports, leaf tobacco and cigarettes, and rice. Total imports in 1943 were valued at $4,679,602, as compared with $4,732,446 in 1942. The 1943 exports had a value of $8,997,896, as compared with $8,151,023 in 1942. The principal export to the United States was rubber, and other countries, principally South American, took Liberia's remaining exports, the chief of which were piassava, palm-kernels, palm-oil and cacao.

Communications.—There are no railroads in the republic, motor trucks affording the only vehicular means of transport. Main highways, which had a total length of 345 miles in 1942, underwent considerable extension with the assistance of American military engineers. During the war Liberia became an important point on the routes for aircraft traveling from the United States to Egypt and to the Belgian Congo. The St. Paul River is navigable for 25 miles from the sea northward, and motor launches ply between the coastal ports. There is cable communication with Dakar, and thence to all the world, and the government operates wireless stations at Monrovia, Bassa, Harper and Kolahun. The Firestone Company has its own wireless stations, and telephone and telegraph services on its plantations.

LIBRARY ASSOCIATION, American. See AMERICAN LIBRARY ASSOCIATION.

LIBRARY OF CONGRESS. Following the resignation of Archibald MacLeish as librarian of Congress in December 1944 to accept an appointment as assistant secretary of state, Dr. Luther Harris Evans, the chief assistant librarian, assumed the duties of acting librarian. His nomination for the librarianship by President Truman on June 18, 1945 was unanimously confirmed by the United States Senate, and he assumed office as the tenth librarian of Congress on June 29. A native of Sayersville, Bastrop County, Texas, Dr. Evans had served as national director of the Historical Records Survey of the Work Projects Administration from 1935 to 1940. As chief assistant librarian he was intimately concerned with the reorganization of the Library of Congress from 1940 to 1944, and with the declaration and development of its policies during that period.

At the close of the fiscal year, June 30, 1945, the collections of the library included 7,877,002 printed books and pamphlets, 1,703,599 volumes and pieces of music, 1,639,505 maps and views, 575,083 fine prints, 936,412 photographic negatives, prints, and slides, more than 7,900,000 manuscripts, 43,343 microfilm reels and strips, 11,955 motion picture reels, and 123,134 phonographic recordings.

As in the years preceding the Second World War, the acquisitions problem centered on obtaining materials related to the government's war program and the library's resources of current materials were greatly strengthened through acquisitions from accessible foreign markets. With the end of the conflict, the problem became one of acquiring publications which were inaccessible during the war. To this end the library is endeavoring, through co-operative enterprise, to secure for its collections and for other collections in the country all essential foreign materials covering the war period.

Among the notable accessions of the year, mention is made of the following: a collection of Woodrow Wilson's letters, covering the period 1906–12, to Col. George Harvey, relating to Harvey's early support of Wilson and to the famous "break" between the two men; the papers of the late Senator Nelson Wilmarth Aldrich (a gift from his sons and daughters); the originals of more than 1,100 cartoons by Clifford K. Berryman of the Washington *Evening Star,* covering a span of 50 years (presented by Mr. Berryman); 20 rare early editions of Cervantes' *Don Quixote* including the "true" first English edition (by gift); the original manuscript musical score of the operetta *Marinka,* the first work composed by Emmerich Kalman in America (presented by the composer); an original copy of the Bill of Rights, one of 14 copies engrossed in December 1789 at the order of the First Congress (a gift of Barney Balaban); the manuscript of Abraham Lincoln's historic "But you must act" letter to Gen. George B. McClellan, April 9, 1862, and the manuscript draft of Lincoln's telegram of Sept. 12, 1862—"How does it look now?"—to McClellan; papers of five generations of the McPherson family of Gettysburg, Pa., dating from 1715 to 1936, of particular value for the study of state and national politics, economic conditions, and the history of Gettysburg and its vicinity; two manuscripts of Prof. Albert Einstein; his first essay of the theory of relativity *Zur Elektrodynamik bewegten Körper,* and *Das Bi-Vektor Field,* embodying some of the scientist's latest researches; a unique collection of musical manuscripts, personal documents, and pictorial material relating to the violinist-composer Nicolò Paganini, acquired through the generosity of Mrs. Gertrude Clarke Whittall, including four unpublished quar-

tets for violin, viola, violincello, and guitar in manuscript, his diaries and account books, his correspondence with members of his family and with royalty, and many unpublished drawings and water colors by famous artists of his day; the manuscripts of three new ballets by Aaron Copland, Paul Hindemith, and Darius Milhaud, and the manuscript of Walter Piston's Partita for Organ and Strings; the manuscript journal of Harriet Low, 1829–34, in nine volumes, written at Macao and Canton, the most detailed description now known of the social life of the early American and British traders to China; a collection of 50,000 photographs and their negatives from the American Red Cross, dating from the beginning of the 20th century to 1933; an extensive collection of war maps, including 92,000 sheets from the Army Map Service; the John Cleves Short collection of papers of the Short, Harrison, Symmes, and allied families, numbering approximately 13,000 pieces, and covering a wide range of social and economic history of an extensive area of the United States from the late 18th century to the middle of the 19th; a large group of etchings, water colors, and drawings of Frank Benson (by bequest); and over 150 fine prints, by purchase from the Pennell Fund, including 35 prints awarded prizes at the Third National Pennell Fund Exhibition of Prints in the Library of Congress.

Pursuant to a recommendation included in the final act of the Inter-American Conference for the Maintenance of Peace, held at Buenos Aires in 1936, that each American republic issue a quarterly devoted to recently published works in science, history, literature, and art, to be distributed and exchanged among the American republics, the Library of Congress established, and published the first two issues of *The United States Quarterly Book List* under the editorship of Dr. Joseph P. Blickensderfer. In the formulation of general policies, the library was aided by an advisory committee composed of distinguished representatives of the American Council on Education, the American Council of Learned Societies, the National Research Council, the Social Science Research Council, and other organizations. A phase of the program of the Interdepartmental Committee on Cultural and Scientific Co-operation of the Department of State, the *Book List* presents reviews of significant new books by American authors published in the United States. Some 400 scholars throughout the country co-operated in the selection and reviewing of publications for the quarterly.

Publication of the *Guide to the Law and Legal Literature of Cuba, the Dominican Republic and Haiti* continued the contributions of the Law Library to legal bibliography and inaugurated a new series of guides to the law and legal literature of the Latin American republics. To the field of Latin American bibliography a further contribution was made in the *Guide to Latin American Periodicals Currently Received in the Library of Congress and in the Library of the Department of Agriculture*, the fruit of the co-operation of numerous specialists here and in South America. Other publications meriting individual mention are *Anglo-American Legal Bibliographies; A Bibliography of Early Secular American Music*, by Oscar G. T. Sonneck (1905), revised and enlarged by William Treat Upton (1945); the second and final volume of *Eminent Chinese of the Ch'ing Period; Catalog of Early Books on Music* (before 1800), and supplement (1913–42) with a *List of Books on Music in Chinese and Japanese;* and five albums of the series *Folk Music of the United States*, by the Archive of American Folk Song.

On the occasion of the 80th birthday of Mrs. Elizabeth Sprague Coolidge and of the 20th anniversary of the establishment of the Coolidge Foundation in the Library of Congress, the foundation sponsored its 10th festival of chamber music in the Coolidge Auditorium. The three new ballets by Aaron Copland, Paul Hindemith, and Darius Milhaud, a Partita for Organ and Strings by Walter Piston, all commissioned by the foundation, and two works for two pianos—a Sonata for Two Pianos by Igor Stravinsky and *Second Avenue Waltzes* by Vittorio Rieti—received their world premières. The Copland ballet, *Appalachian Spring*, received the Pulitzer Prize for the outstanding American composition of the year and citation as the best theatrical work of the season. The Coolidge Foundation sponsored 9 chamber music concerts in the Library of Congress and 37 extension concerts in universities and schools from coast to coast. Of the 18 concerts presented in the library under the auspices of the Whittall Foundation, 16 were performed by the Budapest String Quartet.

On the basis of a subvention from the Rockefeller Foundation the library has established a program of grants-in-aid for studies in American history and civilization. An administrative committee composed of the chief executive officers of the major research councils, assisted by an advisory committee representing leading universities, designates the recipients of grants for research and writing in the history and civilization of the United States. The principal functions of the Library of Congress in the administration of the project are the distribution of grants to recipients and suggestions to the administrative committee of fields of American history in which scholarly study is shown to be necessary or desirable.

A further grant of $47,800 from the Rockefeller Foundation provided means to enable the library to prepare a suitable record of its holdings of Slavic materials. It is an important initial step toward the establishment of the proposed Slavic Center in the Library of Congress. This grant follows an earlier one of $12,000 under which a survey of the holdings of Russian materials in American libraries has been conducted. The results of the survey will serve as a union list of standard Russian works in the major disciplines and will provide the basis for a co-operative program for developing Russian collections in the United States.

As the outcome of a number of conferences held in the library relative to the employment of the library's facilities and the services of its Books for the Adult Blind Division, in the program for the rehabilitation of war-blinded servicemen, the library prepared special books and provided talking book machines for the use of veterans in hospitals and for the continuation of this service in their homes.

At the request of the Department of State, the Library of Congress established and administered a library for the United Nations Conference on International Organization at San Francisco. A basic collection of 3,000 volumes, supplemented by interlibrary loans from co-operating libraries in the area, provided resources for research for the delegations of all participating countries. The staff was recruited from

the Department of State, the University of California, the Council on Foreign Relations, the United States Navy, and the Library of Congress. The Conference Library was the first instance on record of a special library service for the use of all delegations to an international conference.

ROBERT C. GOOCH,
Chief, General Reference and Bibliography Division.

LIBRARY PROGRESS. With the cessation of hostilities in Europe and later in the Pacific, the planning of librarians has been dominated by adjustment for service to the veteran and his family, to the present or the displaced war worker, to the man out of a job, and to the young person who is planning his life to come, in a peacetime world. Librarians, at the instigation of the American Library Association, co-operated with the Department of State in giving leadership and assistance in a nationwide program of study on the problems of building the peace. With the support and active co-operation of libraries, the Book and Author War Bond Committee, composed of librarians, authors, publishers, and the book trade, sold over $160,000,000 worth of bonds through educational campaigns and rallies, in over 70 of the larger cities of the nation. For a complete coverage of the war and postwar activities of libraries during 1945 see all issues of the *American Library Association Bulletin, College and Research Libraries,* and the *Library Journal.*

International Relations.—The challenge, the opportunity, and the responsibility of American libraries to co-operate with libraries in other parts of the world stand out more impressively than ever before. The American Library Association continued to administer American libraries in the capital cities of Mexico, Nicaragua, and Uruguay with funds provided by the Department of State. Further Latin American co-operation resulted from a $25,000 Rockefeller Foundation grant, used to finance an administrative study of the National Library of Brazil, Rio de Janeiro; to send a specialist in rare books to visit various library centers, and to bring outstanding librarians and archivists to the United States. Many have visited the United States during the year. Additional grants continued the Books for Latin America project and the Mexican Union catalog. Library schools were conducted in Peru and Uruguay. In Rio de Janeiro, the city authorized the establishment of 20 public lending libraries, and a course for librarians will be held at the National Library. Students from Argentina, Brazil, Costa Rica, Nicaragua, Peru, and Panama have attended North American library schools.

In 1944-45 the Rockefeller Foundation again gave a grant of $70,000 for the purchase of subscriptions to about 360 scholarly and scientific journals to be stored in this country for distribution to foreign libraries after the war. A further grant of $90,000 for 1945–47 was also made for the purchase of outstanding books of reference and research for libraries in war areas. Another grant of $2,500 provides for a campaign to secure large quantities of books of permanent value for libraries in war areas.

In June 1945 the American Book Center was established, under the auspices of several national library associations, in order to co-ordinate the efforts of many groups interested in collecting gift books for restocking libraries in war areas of the Allied Nations. The American Book Center proposes to conduct, at an early date, a campaign for gifts of printed materials useful for scholarly investigation, and for the physical, economic, industrial and social rehabilitation of devastated areas. It is estimated that more than 1,000,000 usable pieces will be collected and allocated. After needs of the Allied Nations have been met, allocation may be extended to non-allied countries, upon the recommendation of the Department of State.

From replies to A.L.A. letters regarding the conditions of libraries at the cessation of hostilities in Europe it was learned that many of the librarians who were expelled from their libraries have returned; that libraries are attempting to fill the gap caused by five years of war; that librarians and patrons are starved for news and publications of the war years; and that they are anxious to rebuild, where necessary, and continue the restoration of library service and activities from where they were interrupted because of wartime conditions.

Early in 1945, Milton Lord, librarian of the Boston Public Library, visited the American Library in Paris, as representative of the American Library Association which founded the library in 1918, with books sent overseas for the use of service men in the First World War. Books and funds are now being solicited for the library in order to expand its usefulness in the postwar period.

Carl M. White, director, Columbia University Libraries, spent several months in London, serving as library consultant for the United States delegation to the Conference of Allied Ministers of Education.

During April and May 1945 libraries were represented at the United Nations Conference at San Francisco, by Carl H. Milam, executive secretary of the American Library Association, who attended as a consultant appointed by the American Council on Education. A conference to develop an international organization for education and cultural relations is being planned as an outgrowth of that conference.

American libraries in London, Sydney, Melbourne, Wellington, Johannesburg, Bombay, Cairo, Cape Town and Lisbon, operated during wartime by the Office of War Information, have been transferred to the jurisdiction of the Department of State. New American libraries and reading rooms are opening from time to time under this program—some in occupied countries since the declaration of peace.

Negotiations are under consideration to secure an expeditious interchange of cultural materials between the United States and Russia. The State Library of Foreign Languages in Moscow reports that it has several thousand regular readers organized into classes for the study of the history and culture of Allied countries. The USSR states that 1,000,000 books—57,000 titles in 100 languages—have been published during the war in Russia.

The State Department has allocated two grants of $50,000 each to the American Library Association, with which American books will be bought for China through 1945 and 1946. Dr. T. L. Yuan, of the National Library of Peiping, which has been doing co-operative purchasing of Chinese materials for 13 American libraries, spent considerable time in the United States visiting libraries during the year 1945.

Federal and State Aid.—The Library Service Division of the United States Office of Education and the Federal Relations Committee of the American Library Association have been con-

cerned with the following problems: surplus property, including surplus army camp libraries; federal interest in educational facilities, especially the House Committee on Education's proposals for aid to colleges adversely affected by the war; a bill for federal aid to educational building programs; and the book postage rates. Concessions have been gained on library postage which will probably prevent an additional annual charge of more than $100,000 on library books.

Increasing momentum in state aid to libraries was apparent in legislation, appropriations, and establishment of large unit libraries in 1945. Appropriations for state library extension agencies were generally increased—in several states more than 50 per cent—and a small first appropriation was made in Montana. State aid appropriations were made for the first time in four other states: $283,000 for the biennium in Washington, $20,000 for the second year of the biennium in Maryland, and smaller amounts in New Mexico and South Carolina. Illinois appropriated $300,000 and Michigan $371,625 for the biennium. Connecticut appropriated grants for small libraries. At least four states, Michigan, New York, California and Virginia, are making extensive studies of municipal revenue problems.

The number of counties with county or regional library service increased in 26 states, with a total gain of 71 for 1945.

The A.L.A. Library Extension Board marked the 20th anniversary of its organization. Formed for "organized effort toward the goal of adequate public library service within easy reach of everyone in the United States and Canada," it has attempted to build a foundation of informed public opinion particularly through work with national agencies; to interest librarians in new movements such as state planning or state aid for large library units; to provide basic materials and information, and to give advisory service. In 1925, people without public library service constituted 43 per cent of the population of the United States. In 1945 it was 26 per cent. However, the increased population during that period makes the reduction in the actual number of people without libraries—from 45,069,897 to 34,748,334—seem less encouraging. Most of these live in rural areas. The number of counties without a single public library within their boundaries has dropped from 1,135 to 587. Acknowledging that progress has been made, the A.L.A. Council expressed the belief "that national, state and local plans for educational and social progress in the postwar period can set no less a goal than public library service for all the people of the United States and Canada."

School Libraries.—Results of library planning for service to youth were published in *School Libraries for Today and Tomorrow* (A.L.A. 1945) and *A Charter of Education for Rural Children* (U. S. Government Printing Office, 1945). In a number of states, aid to school libraries has assisted schools, especially in rural areas, to build up minimum library service. In the 1944–45 school year some of the expenditures of state aid specifically allocated for school libraries were: Connecticut, $15,000; Florida, $64,008 (about double last year's budget); Georgia, $141,071; New Jersey, $10,000; North Carolina, $118,522; Tennessee, $38,062; Virginia, $150,000; and Wisconsin, $166,096.

Adult Education.—A current Gallup poll indicated that 25,000,000 adults would like to enroll in adult education courses after the war, with interests divided primarily between vocational courses and professional and scientific study. In this connection, the A.L.A. Adult Education Board expressed the belief that "continuing self-education is essential in a democratic society and that the library is potentially the best single source for informal self-education." As a source of informal education, the library is often the only institution available to many who wish to participate in such study, according to the board's annual report. The board also reported that there is a great need for civic education, for family life education, and for the greater development of other cultural courses as a part of the library's service to individuals and groups. Library adult education and readers' advisory services have reported an increasing demand for material and courses of study on rehabilitation, reconversion and reconstruction. Many experienced army camp librarians are being sent overseas to work with the European and Pacific armies of occupation, and to supplement the army's planned educational programs. The army increased the distribution of special service editions of books from 20,000,000 to 50,000,000 during the year.

Library Personnel.—Requests from employers for both experienced and inexperienced library school graduates still far outnumber the candidates available, although with the end of the war some librarians will be returning to their former positions. Salaries for graduates of the 1945 classes were in general from $200 to $300 higher than for graduates of 1944, with $1,800 as the minimum salary reported by most of the library schools, whereas in 1944 that amount was the average. There is a trend upward for all library salaries. Many libraries are adopting classification and pay plans, among them the public libraries of Cleveland, Detroit, Newark and the Library of Congress.

Library Training.—For the first time since 1940, when the decline in enrolments began, the library schools reported an increase in the number of students in comparison with the preceding year. In the 32 accredited library schools in the United States, 1,032 students were enrolled in 1945, compared with 917 for the fall of 1943. In the two Canadian library schools, 41 students were enrolled in 1944–45, whereas 25 attended the previous year. Enrolments in 1945 summer sessions also showed an increase over those of 1944. In 1945, recruiting for the library profession received major attention from the American Library Association.

The end of the war in Europe brought closer to the library schools the need to provide courses for veterans and several have enrolled former members of the armed forces. Most library schools are ready to offer the training required, whether in refresher courses, special programs, or other adaptations of the regular curriculum, and they will follow the policies of their institutions in such matters as the admission of students at irregular times or the acceptance of credit for educational training and experiences received in the armed services.

Gifts, Grants and Buildings.—During the war years, the number of large gifts to libraries decreased, but smaller gifts, collections of books, and private libraries continue to add to the resources of libraries. Among private collections given to libraries were: to Stanford University Library, the Hutton Webster Folklore Collection; to the library of Southern Illinois Normal University, a Lincoln and American history collection donated by Clint Clay Tilton; to University of Illinois Library, a 6,000-volume economics

library from Janet Weston, in honor of her father, late professor at the university; to Minneapolis Public Library, $50,000 from the Citizens Aid Society, to be expended over a five-year period; to Columbia University Library, a collection of classics and incunabula from the late Dr. Gonzalez Lodge; to The Free Library of Philadelphia, 17th century Shakespeare folios by P. A. Widener and Mrs. Josephine Widener Wichfeld; to Texas Christian University Library, de luxe limited editions of American, English, and French literature and history from Mrs. Goodall H. Wooten in memory of her husband; to the town of Muscoda, Wis., the library, home and personal property of Dr. Charles R. Pickering; to the Library of Congress, a Rockefeller Foundation grant of $47,000 for the establishment of a Slavic Center; to the Tulsa Public Library, the Diggs library of classical literature and history by the Tulsa Jewish Community Council; and to the University of Arizona Library, several thousand books, valued at over $10,000 from the Friends of the Library.

Gifts of money and funds for building included: to Newark (Ohio) Public Library, $27,500 under the will of Mrs. Jessie Clark Thomas; to Cairo (Ga.) Public Library, $35,000 by the Roddenberg family; to the Kewanee (Ill.) Public Library, a $25,000 trust fund in memory of Edward Poole Lay; to the Jewell (Ia.) Public Library, $25,000 for the establishment of the E. W. Montgomery Memorial Library; to the Avon (Mass.) Public Library, $82,000 under the will of H. Lawton Blanchard; to Princeton University, $1,000,000 from the Firestone family toward a $3,500,000 Harvey S. Firestone Memorial Library; to the Elmwood (R.I.) Public Library, $100,000 under the will of Mrs. Sophie Knight Rousmanieve; to the Pomeroy (Wash.) Public Library, $10,000 from Mary Liggett; to Walla Walla (Wash.) Public Library, $20,000 by the will of T. C. Elliott; to Lake Geneva (Wis.) Public Library, $100,000 from Mrs. Mary Gudley Bell; to Bradley Polytechnic Institute, Peoria, Ill., $37,500 from Friends of the Library for a new library building; and to the Technological Department of the Carnegie Library of Pittsburgh, $66,195 from the Pittsburgh Chapter of the American Chemical Society to supplement regular book funds.

Because of war limitations on construction, very little new building has been accomplished but numerous are the plans being made by libraries for new buildings within the near future. Following are some: Oakland (Calif.) Public Library, a main building and four branches; California Academy of Sciences, San Francisco, a new building to be shared by the library, museum and science laboratories; Paine College Library, Augusta, Ga., a $100,000 building; University of Iowa Library, $1,000,000 building; Forbes Library, Williamstown, Mass., a separate children's building; the Cincinnati Public Library, $3,500,000 building; the San Diego Public Library, $100,000 initial appropriation for building.

Publications.—Other publications in the library field in addition to those mentioned under American Library Association are: Carnovsky and Martin, eds., *The Library in the Community* (University of Chicago); Rider, *The Scholar and the Future of the Research Library* (Hadham); Lydenberg and Archer, *The Care and Repair of Books* (Bowker); Rankin, *Children's Interests in Library Books of Fiction* (Contributions to Education No. 906, Columbia University); Hackett, *Fifty Years of Best Sellers 1895–1945* (Bowker); Davis, *Pictorial Library Primer* (Demco Library Supplies); *Frederic G. Melcher; Friendly Reminiscences of a Half Century Among Books and Bookmen* (Book Publishers' Bureau); Wilson and Tauber, *The University Library; Its Organization, Administration and Functions* (University of Chicago); Dewey, *Abridged Decimal Classification*, 6th ed. (Forest); and Sears, *List of Subject Headings for Small Libraries*, 5th ed. (H. W. Wilson). See also article, *American Library Association.*

MILDRED OTHMER PETERSON,
American Library Association.

LIBYA. North African territory bounded on the east by Egypt and the Anglo-Egyptian Sudan, and on the west by Tunisia and Algeria; southward, it extends into the Sahara to a line between the 23d and 18th parallels, being bounded by French West and French Equatorial Africa. The total area is about 435,000 square miles, and the population is estimated (1945) at 1,000,000. Libya was under Italian administration prior to the Second World War, the four provinces fronting on the Mediterranean (Tripoli, Misurata, Bengasi, and Derna) being incorporated in the national territory of Italy as Libia Italiana on Jan. 9, 1939; Libyan Sahara, to the south, constituted a military territory.

With British conquest of the territory in 1942, former designations of Libya were resumed—to the eastward, Cyrenaica (area, 300,000 square miles; pop. 250,000); and to the westward, Tripolitania (area 135,000 square miles; pop. 750,000). For political reasons, France maintains a detachment at the Cufra (Kufra) Oasis of Cyrenaica, which French forces from the Tchad Colony had occupied in 1941, but the area is under British administration. A column from Tchad Colony had also occupied southern Tripolitania; this remains under French administration, the dividing line between the French and British spheres being a line which runs roughly from south of Hun (Hon) to north of Gadames (Ghadames).

With the exception of southern Tripolitania, all of Libya is under British military government, Brig. T. R. Blackley heading the Civil Affairs Administration in Tripolitania and Brig. Donald C. Cumming that in Cyrenaica. Tripoli (pop. 110,000) and Bengasi (65,000) are the administrative headquarters of Tripolitania and Cyrenaica, respectively. During the financial year ended June 30, 1943, the cash revenue of Tripolitania amounted to £230,359 and expenditure was £779,941, the net deficit being £549,582; Cyrenaica had revenue of £233,062 and expenditure totaling £606,072, the deficit amounting to £373,010.

All Italian nationals had been removed from Cyrenaica prior to the British occupation with the exception of the bishops of Bengasi and Derna and some 80 individuals. The native population, of comparatively pure Arab and Berber stock, are of the Senussi Tariqa sect of Moslems; Sayid Muhammad Idris el Senussi, unchallenged head of the sect, who had been in self-imposed exile in Egypt for 13 years, was consulted by the new administration on matters affecting the native population. Along the green coastal areas in the vicinity of Jebel al Akhdar Italian settlers had displaced the Moslem inhabitants; they established vineyards and orchards of olives, almonds, and peaches, and grew wheat on a considerable scale. Arab tenants were installed on the abandoned farms by the British administration and provided with modern agricultural machinery, and since then the country has produced all its own foodstuffs. In 1942 Egyptian currency was declared legal tender, the rate of exchange being £E1 for 492 Italian lira. An Italian-built railroad operates between Barce and Bengasi (66 miles), and during the war the

Egyptian coastal railroad was extended into Cyrenaica as far as Tobruk (Tobruch). The 500 miles of good highways constructed by the Italians were extended considerably in the course of military operations.

Unlike the case in Cyrenaica, most Italian inhabitants remained in Tripolitania after the Axis retreat, some 40,000 being gathered in the towns and the fertile coastal strip; there was also an ancient Jewish community of 23,000. While some Fascist sympathizers were removed, the British administration found ready support among most of the Italian civil officials, the judges and physicians. The Berber and Arab inhabitants also co-operated, their schools being reopened and the pilgrimage to Mecca being renewed. The Italian-fostered settlement schemes were taken over by the administration, every encouragement being given to the production of wheat and other foodstuffs; a large para-statal concern which enjoyed the monopoly of tobacco production was also taken over. A new currency, the Military Authority lira, was introduced and became the only legal tender. Since Italian banks had closed and, on the orders of their government, had distributed their funds to the Italian Red Cross and other institutions in Tripoli, a British bank commenced operations in the territory in March 1943. Italian-built railroads radiate from Tripoli to Zuara (68 miles), Garian (61 miles), and Tagiura (13 miles), the last being extended during the war to Homs.

With the end of hostilities, during 1945 the disposition of Libya brought forth several conflicting claims. In the House of Commons on Jan. 8, 1941, Anthony Eden, secretary of state for foreign affairs, declared it was the policy of the British government not again to permit the inhabitants of Cyrenaica to come under Italian rule, but no assurance was given that Tripolitania would not again fall under Italian domination; on Sept. 21, 1943, however, Prime Minister Winston Churchill announced that the Italian empire overseas was "irretrievably lost." Anthony Eden, again in the House of Commons, stated on Jan. 17, 1945, that "the Italian government have no right to the return of any one of their colonies. What is done about the colonies is a matter, in some part, for discussion in the future." Nevertheless, Italy hoped to retain Libya. In a letter to Secretary of State Byrnes on Aug. 22, 1945, Italian Foreign Minister A. de Gasperi wrote: "We gather that while no objections are raised against Italian sovereignty in Tripolitania, strategic guarantees are being sought in Cyrenaica in order to afford full security to the bordering countries and to the international sea routes. We believe that such a security could be obtained through the establishment of 'strategic areas,' air and naval bases, and other guarantees in the Tobruk sector and in Marmarica, without depriving Italy of the sovereignty on the Cyrenaica plateau, which she has already partly transformed into a suitable territory for her agricultural emigration." It was reported that when the meeting of the Council of Foreign Ministers opened in London in September the United States favored a United Nations' trusteeship for Libya (perhaps with Italy as the administering power), but on September 18 the Soviet Union put forward a claim for Russian trusteeship of the territory on behalf of the UNO. The Arab League (q.v.) countered this proposal with the suggestion that both Tripolitania and Cyrenaica be given full independence, and on September 25 Abdul Hamid Badawi Pasha, the Egyptian foreign minister, declared that if this was unacceptable then both areas should come under the trusteeship of his own country. British policy for the disposition of Libya was not announced.

LIECHTENSTEIN. An independent principality in Europe, lying east of the Rhine River, opposite the Swiss canton of Saint Gallen. The area is 65 square miles; the population (11,218 in December 1941) is of German origin, and nearly all are of the Roman Catholic faith. The state has been politically independent since dissolution of the German Confederation in 1866. Prince Francis Joseph II (born 1906), the present ruler, succeeded Francis I, his great uncle, July 25, 1938; in 1943 he married Countess Gina von Wilczek (Princess Georgine). The capital is Vaduz (pop. 2,020). A constitution adopted in October 1921 provides for a diet of 15 members, elected for four years by direct vote based on universal suffrage. On Feb. 17, 1945, the Federal Council of Switzerland (with which the principality is affiliated economically), yielding to Allied demands, blocked all German holdings in the two countries pending examination of individual accounts by a mixed commission. Because of "lack of freedom of action," on July 21, Dr. Josef Hoop, the premier, informed the Liechtenstein Diet that he and his Cabinet had decided to resign, their usefulness having been impaired. It was not until Sept. 3, 1945, that the Diet selected Alexander Frick, leader of the Conservative Party, to head a new administration. The budget for 1945 estimated revenue at 2,821,150 (Swiss) francs and expenditure at 2,881,083 francs; the public debt stood at 2,669,615 francs. Schools in 1942–43 numbered 62 (42 elementary and 20 continuation schools), with 1,701 pupils. Liechtenstein has no military force. The occupation of the people is chiefly agricultural. Wheat is raised and fruit trees cultivated, while there are considerable numbers of livestock. Other products of the principality are lumber and marble, and industries include textiles, leather goods, and pottery manufacture. The country is within the Swiss Customs Union; and Switzerland also administers the postal and telegraphic services.

LIFE INSURANCE. At the beginning of 1945, 70,000,000 Americans, half of the entire population of the United States, owned life insurance in the legal-reserve companies of the country, for an aggregate amount of $149,071,000,000. The new business issued in 1944 amounted to $14,591,000,000. In that year, these same companies paid or credited to their policyholders and beneficiaries a total sum of $2,528,000,000. At the beginning of 1945 the companies held assets of $41,054,000,000, most of which covered the legal reserves which, together with much smaller voluntary reserves, have been established to make certain that all future policy benefits will be fully paid when they fall due.

Mortality.—Data for the first eight months of 1945 indicated that, aside from war deaths, the year 1945 will rank among the years of relatively low mortality in the United States. Indeed, civilian mortality in this country was remarkably low during the entire four years of war which started with the attack on Pearl Harbor, Dec. 7, 1941. The record for the armed services was, of course, of a different nature. In the first eight months of 1945, i.e., up to the termination of the war in August, war deaths resulting directly from enemy action comprised about 13 per cent of total deaths among

ordinary policyholders, as compared with 8 per cent for the year 1944; the corresponding figure for the full year of 1945 was estimated to be about 10 per cent. The proportions among industrial policyholders were considerably smaller because of the larger ratio of women and children insured under policies of this type.

War Risk.—Policies issued by most companies during America's participation in the war included war risk provisions which limited the insurance company's liability in event of death while the insured was in military service. The companies absorbed the war risk on practically all of the policies issued before the war, but the safety of the insurance of the general body of policyholders demanded that the companies take the necessary precautionary measures in respect to new insurance. The extra hazard of war was a risk which was properly assumed for a limited amount by the federal government in the form of National Service Life Insurance. Following the Japanese surrender, most companies discontinued the general use of war risk limitations in new policies. A number of companies also took action on the elimination of the war clause on outstanding policies.

Interest Earnings.—One of the major difficulties experienced by life insurance companies in recent years has been that of finding an adequate volume of appropriate and remunerative investments for their funds. During the war the only substantial outlet for new funds was government bonds. In the period from the attack on Pearl Harbor to the Japanese surrender, the American life insurance industry added a net amount of about $10,000,000,000 to its portfolio of federal and dominion government bonds. Market offerings of corporate securities were relatively scarce, although the volume available in 1945 was the largest in over a decade. However, a major portion of the nongovernment financing was for refunding rather than for new capital.

Leaving out of account the temporary effect of asset gains, the interest rate earned during 1945 on the aggregate of life insurance companies' assets continued the steady decline characteristic of recent years. This reflected to a marked degree the low yield obtainable on suitable new investments, particularly on government bonds which represented almost 50 per cent of the assets of the companies at the end of 1945, and also on new issues and open-market securities generally.

Legislation.—Continued progress was made in 1945 in the nationwide legislative program to have new standard valuation and nonforfeiture laws enacted in the individual states. To the end of September 1945, the proposed standard legislation had been enacted by 23 states; there are perhaps 11 other states in which the proposed measures appear acceptable under existing statutes. The proposed legislation has been recommended by the National Association of Insurance Commissioners and endorsed by many life insurance organizations. It provides for the use of modern mortality tables, and dissociates, to a greater extent than do current laws, the minimum nonforfeiture requirements from the policy valuation basis. It also provides a new method of determining minimum nonforfeiture values under which such values are more nearly related to the real equities of the policyholder at the time of default than has been true under existing nonforfeiture legislation.

After the Supreme Court of the United States had decided in June 1944 that insurance is commerce, and when conducted across state boundaries, is interstate commerce as respects such statutes as the federal Sherman Anti-Trust Act, legislation which had been introduced in Congress in this connection became of acute interest to the whole insurance business and to the state regulatory authorities. A law was finally enacted in March 1945, under which supervision and taxation of the insurance business by the individual states is continued. With some exceptions, the application of the federal anti-trust and certain other laws to insurance is suspended until Jan. 1, 1948, but these laws will be in effect thereafter to the extent that such business is not regulated by state laws.

Notwithstanding the passage of this legislation, the question of the validity of the tax laws of certain states growing out of the decision referred to was still open, their validity being questioned on the ground that they discriminate unconstitutionally against foreign (out-of-state) insurance companies and hence against interstate commerce. This was alleged in the case of states which imposed on domestic companies either no tax or a tax at a rate lower than that applicable to foreign companies. The question is being tested by litigation in a number of states. Several states have, however, enacted statutory amendments so that they now impose the same tax rate on domestic and foreign companies.

LEROY A. LINCOLN,
President, Metropolitan Life Insurance Company.

LIME. The lime industry in 1944 experienced remarkably little change compared with 1943, according to the United States Bureau of Mines. Sales of "open-market" lime totaled 6,473,563 short tons valued at $48,698,162, receding 2 per cent from the all-time high of 1943. Quicklime represented 80 per cent and hydrated lime 20 per cent of the total, the same as in 1943. Sales of agricultural and refractory lime gained slightly, but building lime and that used in the chemical and processing industries experienced small declines. The most difficult problem with most operators was the shortage of labor.

LIMES. See CITRUS FRUITS.

LINDSAY, SIR Ronald Charles, British diplomat: b. Scotland, May 3, 1877; d. Bournemouth, England, Aug. 21, 1945. As British ambassador at Washington from 1930 to 1939, Sir Ronald helped to promote mutual understanding between Britain and the United States which made it easier for these two nations to present a solid front against Fascist aggression.

The fifth son of the 26th Earl of Crawford, Sir Ronald was educated by private tutors and at the Winchester School in Hampshire, then specialized in foreign languages. He entered the diplomatic service in 1898; became an attaché at St. Petersburg (now Leningrad) in 1899; a second secretary to the legation at Teheran, Iran, in 1903; and then served in Washington (1905–07), and Paris (1907–08). In 1908 he was brought back to England for three years' service in the Foreign Office, and then was sent to The Hague, where, among other things, he was secretary to the British representatives at the International Opium Conference in 1911. He became undersecretary of state for finance to the Egyptian government in 1913, a post he held until 1919, when he was dispatched to Washington as counselor to the British Embassy. Appointed minister plenipotentiary at Paris in 1920, he was back in London the next year as additional undersecretary at the Foreign Office, where he remained until

1924, when he went to Constantinople (now Istanbul), first as His Majesty's representative and later as ambassador. He was transferred to Berlin as British ambassador to Germany in 1926 and two years later returned to London as undersecretary of state at the Foreign Office. Not long after becoming British ambassador in Washington, Sir Ronald was engaged in arduous negotiations regarding the payment of the British war debt. He retired from the diplomatic service in 1939. Sir Ronald was knighted in 1925.

LIONS INTERNATIONAL. An international association of Lions Clubs, founded by Melvin Jones; organized in Chicago, June 7, 1917, and devoted to service to humanity. On July 30, 1945 the membership totaled 230,000. Lions Clubs carry on their activities individually. They are classified within the following eight headings: Boys and Girls; Citizenship and Patriotism; Health and Welfare; Safety; Civic Improvement; Community Betterment; Education; Sight Conservation and Blind. The organization publishes *The Lion, El Leon,* and *Lions International Monthly Letter.* Ramiro Collazo is president of the association, and Melvin Jones is secretary general: Headquarters: 332 S. Michigan Avenue, Chicago 4, Ill.

MELVIN JONES,
Secretary General, Lions International.

LIQUORS, Distilled. See DISTILLED SPIRITS.

LITERATURE. The year 1945 saw a continuance of the boom times that the publishers had enjoyed through 1944, although persisting paper restrictions were reflected in a *Publishers Weekly* (Oct. 6, 1945) tabulation showing that during the first 9 months of 1945 only 4,747 titles were published, as compared with 5,159 in the same period of the previous year, a decline of 412 titles.

Germany's defeat early in May, ending the war in Europe, brought a slight easement with an increase of paper allotments (2½ per cent) effective July 3, bringing the 1945 quota to 77½ per cent. If the additional allowance was to be used wholly during the last six months of the year, this meant a 5 per cent improvement. An amendment of the order controlling the use of newsprint on August 27, less than a month after V-J Day, limited book publishers to 113.3 per cent of newsprint for books used in the corresponding quarter of 1944, or the second quarter of 1945. At their meeting in Washington early in September the Newsprint Industry Advisory Committee advocated relaxation on October 1 of the War Production Board restrictions, and revocation of all newsprint controls by the end of the year.

While publishers and the book trade in general were optimistic regarding the total sales for 1945's last quarter, there was apprehension over 1946 prospects. Anticipated war aftermaths in the form of large-scale unemployment during the reconversion period and a temporary depression, they feared, would cause a sharp decline in book purchases.

Bookstores reported excellent business for the year, in many cases even better than 1944. As in 1944 a considerable proportion of sales were for shipment to men and women in the services. The return of the expeditionary forces beginning in June and the accelerated demobilization after V-J Day resulted toward the end of the year in a sharp curtailment of these sales.

Among the first fiction titles of 1945 to attain the best seller list were John Steinbeck's *Cannery Row* and Samuel Shellabarger's *Captain from Castile.* Lloyd C. Douglas' *The Robe,* published in 1942, continued its phenomenal sale through the year, as did Kathleen Winsor's *Forever Amber,* a holdover from October 1944. Before *Forever Amber's* English publication, which was delayed until August 31, advance British orders had mounted to the staggering total of 2,500,000 copies. Adria Locke Langley's *A Lion is in the Streets* after May publication leaped to the top of the list where it remained until superseded in August by James Hilton's *So Well Remembered.* The veteran C. S. Forester with his *Captain Hornblower,* Bruce Marshall with *The World, the Flesh and Father Smith* and Wilbur Daniel Steele with *That Girl from Memphis* also became best sellers. Rosamond Lehman's *The Ballad and the Source* and Taylor Caldwell's *The Wide House* likewise took rank. Upton Sinclair's *Dragon Harvest* and Sinclair Lewis' *Cass Timberlane* found their place, as did Lau Shaw's *Rickshaw Boy,* James Ramsey Ullman's *The White Tower* and Thomas B. Costain's *The Black Rose.*

Prominent in nonfiction were Sumner Welles' *An Intelligent American's Guide to Peace,* W. L. White's *Report on the Russians,* the World Publishing Company's *The Best from Yank,* Ernie Pyle's *Brave Men* (November 1944 publication), General Marshall's *Report* and Bill Mauldin's *Up Front.* Significantly, these best sellers were all war books. A good proportion of popular nonfiction, however, had no military connotations, or very incidental ones, as James Thurber's *The Thurber Carnival,* George and Helen Papashvily's *Anything Can Happen,* Gertrude Lawrence's *A Star Danced,* Louis Bromfield's *Pleasant Valley,* Richard Wright's *Black Boy* and Samuel Hopkins Adams' *A. Woollcott.*

The Pulitzer Prize this year for a distinguished novel was awarded to John Hersey for his *A Bell for Adano;* the play award went to Mary Chase for *Harvey;* Stephen Bonsal received the history award for *Unfinished Business;* and Russel Blaine Nye's *George Bancroft: Brahmin Rebel* was adjudged the most outstanding biography. Karl Jay Shapiro received the poetry award for his *V-Letter and Other Poems.*

The Council on Books in Wartime continued after V-J Day the distribution of its Armed Services Editions, consisting of 774 titles in over 20 categories; these included, besides contemporary fiction, biography, history, classics, science, poetry, music and arts, and current affairs. Practically all books issued by American publishers, including the most recent best sellers, have been made available to the series. A monthly production of over 6,000,000 copies was shipped to American fighting men all over the world through 1945. Another function of the council was their Overseas Editions. These were translated into French, Italian and German and distributed by the Office of War Information both in the liberated countries and in occupied enemy territory. While the purpose of the Armed Services Editions was to sustain and improve morale in the fighting forces, the object of the Overseas Editions was frankly propagandist. The books were for distribution to our European civilian allies and defeated enemies. The 72 titles included lives of Franklin, Jefferson, Tom Paine, George Washington Carver and Oliver Wendell Holmes, a history of the United States and a book on the TVA.

On May 7, 1945, Governor Tobin of Massachusetts signed a new censorship bill which had

the backing of the Massachusetts Library Association. It transfers the power to initiate formal action against a book from the police to the attorney general or district attorney, and places complaints under civil rather than criminal procedure. It also limits complaints to sales made to minors. On the very day of the signing, lawyers were still arguing in an appeals court the case of Lillian Smith's banned *Strange Fruit*, continuing litigation begun in April 1944 when a Cambridge book dealer was fined $100 for selling a copy. The wide publicity given the prosecution of this test case was undoubtedly a factor in keeping the book so long in 1944 at the head of the best seller list. However, the Supreme Judicial Court of Massachusetts upheld the conviction on Sept. 17, 1945, so that in that state the book remains officially banned as obscene.

Fiction.—American men novelists of established reputation produced no work that added appreciably to their laurels during the year. Sinclair Lewis belabored middle class American marriage *à la mode* in *Cass Timberlane*, the story of an elderly husband and a young wife, better told in historic *Main Street*. Upton Sinclair continued the adventures of his Lanny Budd in *Dragon Harvest*. Wilbur Daniel Steele's *That Girl From Memphis* portrayed a repentant Magdalen. John Steinbeck's *Cannery Row* pictured low life in the author's early manner. Herbert Gorman's *The Wine of San Lorenzo* was a fine romance of the Mexican War of 1846. Glenway Westcott's *Apartment in Athens* was a poignant story of a Greek family in occupied Athens. Daniel Wickenden's *The Wayfarers*, a smoothly written tale of Middle Western family life, carried no new message. Booth Tarkington's *Image of Josephine* described the regeneration of a selfish woman. Charles Nordhoff and James Norman Hall achieved in *The High Barbaree* a fine escapist yarn describing life on a South Sea island unknown to cartographers. John Dos Passos in *First Encounter* revealed the misgivings of a Second World War soldier, fearful that America had lost her ideals and had started on the German path.

A number of lesser known and neophyte fiction writers won honors. Thomas B. Costain, better known in literary circles as an editor than a novelist, produced in *The Black Rose* a romance of 13th century England and the Orient that became a best seller almost on publication. James Ramsey Ullman, an adept at mountaineering, wrote a fascinating psychological novel in *The White Tower* which describes the ascent of an Alpine peak in wartime. Robert Molloy, literary editor of *The New York Sun*, in his first novel *Pride's Way*, produced a minor masterpiece of characterization. Walter Van Tilburg Clark, whose *Ox-Bow Incident* was much admired several years ago, depicted a sensitive musically talented young Nevadan in *The City of Trembling Leaves*. Edison Marshall's *The Upstart* narrated the romance of 18th century London strolling players, with a happy denouement in Georgia of postrevolutionary times. The actor Tom Powers wrote a delightfully humorous and touching romance about a hat check girl in *Virgin With Butterflies*. E. J. Nichols' *Hunky Johnny* depicted second generation Slovak-Americans fighting against the prejudices of our native stock.

Established American women novelists were more productive than in the previous year. Taylor Caldwell's *The Wide House* was sheer melodrama. Edna Ferber set the scene of *Great Son* in the booming Pacific Northwest, while Faith Baldwin, tiring of Manhattan sophisticates, found humanity equally perverse in *Arizona Star*. Alice Tisdale Hobart crossed the Rio Grande to interpret revolutionary Mexico of recent decades in *The Peacock Sheds His Tail*. Another old China hand, Pearl Buck, stayed home to describe life in the Pennsylvania countryside in *Portrait of a Marriage*. Elswyth Thane's *Ever After* carried the Day family saga a generation further, into the gay nineties. Elizabeth Ogilvie in *Storm Tide* wrote of social conflicts on the Maine coast. Mary Roberts Rinehart's first book in three years, *The Yellow Room*, also with a Maine setting, was a sure best seller after serialization in the *Saturday Evening Post*. Susan Glaspell's *Judd Rankin's Daughter* was a thoughtful, rather wistful tale of a wise old middlewest newspaper editor and his battle-scarred grandson.

Several newcomers and little known American women authors established reputations as successful fiction writers this year. A first novel, and the most popular, was Adria Locke Langley's *A Lion is in the Streets*, describing a Southern demagogue's transformation into a local dictator. For inexplicable reasons many reviewers attempted to prove that the scalawag hero was *not* based upon the late Huey Long of malodorous memory. Josephine Pinckney's *Three O'Clock Dinner* was Charlestonian high comedy by a native better known as poet than novelist. Martha Dodd's *Sowing the Wind* depicted the *facilis descensus* of a young German imbued with the late A. Hitler's doctrine. Elizabeth Janeway's *Daisy Kenyon*, a second novel, described the love "without benefit" of a career woman and a lawyer. Christine Noble Govan in *Jennifer's House* described the gentle life of the old South.

Foreign novelists, as in 1944, were well represented. James Hilton's *So Well Remembered*, a nostalgic story of small town life, soon became the leading best seller. Mary Lavin's *The House in Clewe Street* was an interesting study of life in an Irish village. E. L. Voynich (an Englishwoman who in 1897 published *The Gadfly*, a novel of the risorgimento that became a best seller) again showed her mastery of characterization in *Put Off Thy Shoes*, a psychological novel of the 18th century. George Simenon's *The Shadow Falls* plumbed the pathologic depths of a French family. Rosamond Lehman's *The Ballad and the Source* was a study of a beautiful woman who preferred evil. Ernest Boyd's translation of Heinrich Mann's *Little Superman*, revealed the basic savagery and servility of German character. Robert Graves' *Hercules, My Shipmate* was a colorful account of Jason and the Argonauts in pursuit of the Golden Fleece; it is one of the best of his evocations of classic epochs. Clemence Dane's *He Brings Great News* describes the adventures of the young officer who brought the news of the Trafalgar victory to London. Lau Shaw's *The Rickshaw Boy* was a racy, humorous and ironically pathetic story of a Chinese underdog. Zalman Shneour's *Song of the Dnieper* tells of the persecutions of heroic Jews in a Czarist village. M. B. S. Strode-Jackson's *Tansy Taniard* was a romance of Elizabethan England. Nicholas Monsarrat's *Leave Cancelled* described the amorous farewell of a British soldier returning to the front. André Maurois' *Woman Without Love* was a brilliant psychological study of a frustrated woman. Compton MacKenzie's *The North Wind of Love* told the impact of prewar world events on a sensitive Englishman. Johannes V. Jensen, the Dane who received the Nobel Prize for literature in 1944, was represented by

his greatest work, *The Long Journey,* an epic of mankind. C. S. Forester's *Captain Hornblower* was a swashbuckling yarn in the Marryat tradition. Bruce Marshall repeated his feat of *Father Malachy's Miracle* in *The World, the Flesh and Father Smith.* W. P. Crozier, for 20 years editor of the Manchester *Guardian,* died just before publication of his novel of imperial Rome, *The Fates Are Laughing.* The Hungarian Ferenc Molnar's first novel with an American setting, *Farewell My Heart,* was a trivial production. Rafael Sabatini's *Birth of Mischief* was an ineffective historical romance dealing with the rise of Prussia under Frederick the Great. J. B. Priestley's *Three Men in New Suits* described the reactions of demobilized soldiers to a changed England. Josephina Niggli delightfully portrayed her rural compatriots in *Mexican Village.* Ludwig Bemelmans' *The Blue Danube,* with his own colored illustrations, was a tender, witty and deeply moving story by this popular Austrian humorist. Jules Romains' *The Wind is Rising,* the 12th volume of his *Men of Good Will,* carried the story to 1928 when most of the characters had turned forty.

Biography, Memoirs.—There was a large variety of biographies and reminiscences of statesmen, soldiers, scholars, writers and artists, the biographical subjects being in the main of 19th century and contemporary personalities. George Santayana scored with *The Middle Span,* a continuation of *Persons and Places,* which carries the reader through the long Harvard years with bright interludes of European travel. Dorothy Caruso's *Enrico Caruso: His Life and Death* was a tender and deeply moving portrait of a great artist with the golden heart of a child. As fine and poignant a tribute to a life partner was Henry Wise Miller's *All Our Lives: Alice Duer Miller.* Samuel Hopkins Adams' *A. Woollcott: His Life and His World* was a penetrating analysis that infuriated some of Woollcott's friends. Senator George W. Norris' *Fighting Liberal,* published a few months after his death, was the unemotional apologia of a reformer. Tikhon Polner's *Tolstoy and His Wife* described at first hand a ménage more fabulous than fiction. Edgcumb Pinchon's *Dan Sickles* attempted to rehabilitate as thorough a scoundrel as has ever risen to high place in American public life. Carl Van Doren provided an excellent likeness in *Carl Van Doren.* The South African Stuart Cloete depicted Cecil Rhodes, Paul Kruger and Lobengula, last king of the Matabele, in *Against These Three.*

Among the biographies of 18th and early 19th century personalities one of the best was Claude Bowers' *The Young Jefferson,* recreating the statesman's early years. Joseph Wood Krutch's admirable *Samuel Johnson* stimulated many readers to reperusal of their Boswells. Adolph Meyer's *Voltaire: Man of Justice* was a good brief study of the man who, according to John Morley, was one of the underlying forces that have shaped the course of civilization. Ricardo Rojas' *San Martin,* excellently translated by Herschel Brickell and Carlos Videla, was a spirited life of the great Argentine soldier who ranks in moral grandeur with Washington. W. E. Woodward portrayed in *Tom Paine,* the first Anglo-American champion of the common man. Phil Stong's *Marta of Muscovy* presented Peter the Great's colorful second wife. Eliot M. Grant described *The Career of Victor Hugo.* Daniel Sargent's *Mitri* depicted Prince Demetrius Gallitzin who, as a missionary priest of the Roman Catholic Church, founded Loretto, Pa. Robert Haven Schauffler's *Florestan* was a vivid portrayal of the composer Robert Schumann. Evelyn Foster Morneweck in *Chronicles of Stephen Foster's Family* told nothing new about Stephen. John Moody's *John Henry Newman* pictured the famous convert.

Lives and memoirs of personalities that flourished in more recent and contemporary times included Linnie Marsh Wolfe's *Son of the Wilderness,* a fine portrait of John Muir; Field Marshal Viscount Wavell's *Allenby in Egypt,* a history of the Allenby administration after the First World War; Theodore Maynard's *Too Small a World,* a charming life of the little Italian nun who came to New York before the turn of the century, and who will probably be canonized, becoming the first saint to die in the United States. The Danish Karl Eskelund's *My Chinese Wife* joyously refuted Kipling's aphorism as to the incompatibility of East and West. Oliver La Farge in *Raw Material* told how he overcame the handicap of Groton and Harvard. J. Frank Dobie waxed lyrical over the English countryside in *A Texan in England.* Among other entertaining reminiscences were Henry Seidel Canby's *Family History,* narrating Canby exploits in three centuries; Charles Hanson Towne's *So Far So Good,* recalling New York events and personalities of the nineties and early decades of this century; Gertrude Lawrence's *A Star Danced,* a better than average theatrical autobiography; Louis Bromfield's *Pleasant Valley,* describing a Gallophil's escape from the dangers and sufferings of France to a co-operative farming venture in the Ohio hill country; the late Alexender Granach's *There Goes an Actor* was the colorful life story of a popular Jewish actor. Robert Service, the Scot who became Canada's national poet, narrated his career in *Ploughman of the Moon.* Margery Miller, pretty young college graduate and fistiana cultist, did her bit for good race relations in *Joe Louis: American.* Frank McNaughton and Walter Hehmeyer produced a competent, and the first, biography of our president entitled *This Man Truman.*

History, Government and Economics.—The American historical background was covered in colorful variety. Volume II of the *Album of American History, 1783–1853,* of which James Truslow Adams is editor in chief, was a picture book containing 1,300 representations of the American way of life during seven decades. Stephen Bonsal's *When the French Were Here* described the friendly invasion of 1780 with its glorious climax at Yorktown. James Monaghan's *Diplomat in Carpet Slippers* revealed Lincoln's brilliant foreign policy. One new edition of a classic deserving special mention was Alexic de Tocqueville's *Democracy in America,* corrected and annotated by Phillips Bradley. Arthur M. Schlesinger Jr.'s *The Age of Jackson* described a famous era. H. McD. Clokie's *Canadian Government and Politics* illuminated Canadian obscurities. Sir John Clapham's *The Bank of England* gave a full length biography of the Old Lady of Threadneedle Street from her 1694 birthday to 1944. Another institutional history of note was *United States Naval Academy* by John Crane and James F. Kieley, recording a century's progress. Prof. Bernard H. M. Vlekke's *Evolution of the Dutch Nation* narrated the growth of democracy on the Zuyder Zee, while his *Story of the Dutch East Indies* pictured the development of the Netherlands Indies down to General MacArthur's return to the Philippines. Arthur Bryant

in *Years of Victory: 1802–1812,* sequel to his *The Years of Endurance,* continued the story of Britain's quarter century struggle with Napoleon. James Truslow Adams' *Big Business in Democracy* was a panegyric of big business as exemplified in the history of General Motors. A well reasoned argument for continuance of the free enterprise system appeared in George Terborgh's *The Bogy of Economic Maturity.* John Bartlet Brebner analysed the interdependence of the chief English-speaking nations in *North Atlantic Triangle: The Interplay of Canada, the United States and Great Britain.* Charles A. Beard in *The Economic Basis of Politics* contended that only "economic man" can balance the trend toward statism. *Economic Problems of Latin America,* edited by Seymour E. Harrison, was one of the best available studies of the economies of the ten leading Latin American countries by 17 economists. P. T. Ellsworth's *Chile: A New Economy in Transition* presented a plan for stabilizing that nation's unbalanced economy.

The War, World Affairs.—There was no diminution in the flood of books about the war. Certainly the most important was *General Marshall's Report—The Winning of the War in Europe and the Pacific,* the chief of staff's account of the American Army's activities from July 1, 1943 to June 30, 1945; actually it continues to the defeat of Japan six weeks later. This cogent history of the American military contribution to the Axis débâcle is a *must* for students of the Second World War. Joel Sayre's *Persian Gulf Command* described the task of 30,000 American service troops in supplying Russia through the Iran corridor with the 4½ million long tons of munitions that helped to stop the German stampede before Stalingrad. Robert J. Casey's *This is Where I Came In* and *Battle Below* gave a brilliant correspondent's views of five years of warfare in Europe. Ira Wolfert's *American Guerrilla in the Philippines* was the epochal story of Lieut. I. D. Richardson's exploits in the Japanese-held islands. Louise Reid Spencer's *Guerrilla Wife* pictured life in the Philippine bush while her husband fought the invaders. No survey of war literature could be complete without reference to *The Best from Yank,* an anthology of the GI's point of view, and Bill Mauldin's *Up Front* that established its author as the greatest war cartoonist of combat soldiers. One of the best of several naval books was Lieut. Comdr. Joseph Bryan's and Philip Reed's *Mission Beyond Darkness,* describing a strike by Admiral Mitscher's Task Force 58 against a Japanese fleet in the Philippines. *Men Under Stress* was a distinguished study of operational fatigue by Lieut. Col. Roy R. Grinker, M.C., and Major John P. Spiegel, M.C.

British fighting men were well represented. Guy Morgan's *P.O.W.* was a penetrating analysis of the psychological effects of prison life on war prisoners. Lieut. L. A. Jewell's *Secret Mission Submarine* narrated the odyssey of the English pig boat that conveyed our Gen. Mark Clark to his clandestine rendezvous in North Africa and then, on a similar perilous voyage, transported General Giraud across the Mediterranean. Capt. Somerset de Chair's *The Golden Carpet* was a somewhat too egotistic account of the brilliant exploit of the British armored battalion that captured Baghdad in May 1941. The Swedish Count Folke Bernadotte's *The Curtain Falls* described Himmler's attempt to make a negotiated peace.

There were a number of interesting books on what to do with the Germans to safeguard the world against a repetition of their aggressions. Henry Morgenthau, Jr.'s *Germany is our Problem* urged depriving Germany of all her heavy industries and sending the excess industrial workers back to the land. A like solution was offered by Col. T. H. Minshall in *Future Germany,* originally published in England in 1944; Minshall argued also for political and administrative decentralization of the Reich, suggesting that the Germans were a far happier people when they had a lower standard of living. Lord Vansittart's *Bones of Contention* arraigned the German ruling classes and called attention to the fact that many of the German fugitives from Hitlerism in England and the United States still profess the Pan-German faith. The intransigent Heinrich Hauser's *The German Talks Back* expresses what is, perhaps, the average Teuton's conviction that 20 years hence Germany will revenge her two defeats in this century. Erich Koch-Weser in *Hitler and Beyond,* published after the author's death, attempted to prove that there are good Germans "who didn't want the war." Emil Ludwig's *The Moral Conquest of Germany* offered a plan for civilizing the Germans.

Prominent in numbers and quality were the books that attempted to forecast Russia's power politics moves. Edgar Snow's *The Pattern of Soviet Power* was an objective study of ambitions for European domination. John Scott's *Europe in Revolution* favored a European federation, but thought it unfeasible because of Russian opposition. David J. Dallin in *The Big Three: the United States, Britain and Russia* offered a pessimistic appraisal of problems that must be solved to avoid a third world war waged to satisfy Russian imperialist ambitions.

There were a number of excellent studies of Japanese mentality and ambitions. Otto D. Tolischus' *Through Japanese Eyes* described the concepts of a "master race." *Japanese Militarism* by John M. Mari, a scholarly young Nisei, was a penetrating historical analysis of Japanese thought patterns. Willard Price in *Japan and the Son of Heaven* urged the removal of Hirohito as essential to future peace.

Nathaniel Peffer's *America's Place in the World* argued for a world security organization, the only possible instrument to ensure peace. Sir William Beveridge's *The Price of Peace* was logically related to his former books on social security and full employment. Roland Hall Sharp's *South America Uncensored* described the Fascist tidal wave that swept over South America when Hitler and Mussolini were sinking. Don Luigi Sturzo in *Italy and the Coming World* advocated gradual measures for solving Italy's problems.

Poetry.—One of the sensational literary events of the year was the publication of 668 hitherto unpublished poems of Emily Dickinson entitled *Bolts of Melody.* John Crowe Ransom's *Selected Poems* earned high commendation. Louis MacNeice's *Springboard (Poems), 1941–44* reflected war-wracked England. *The Collected Poetry of W. H. Auden* contained most of the earlier work between boards and two dozen uncollected poems. The brilliant young Karl Shapiro, whose *V-Letter* brought him sudden fame, produced in his blank verse *Essay on Rime* a fine appraisal of modern poetry. Ogden Nash's *Many Long Years Ago* contained representative pieces of this master of whimsical verse.

Miscellaneous.—H. L. Mencken's monumental *The American Language: Supplement I* was a thesaurus of expressions that have found a place in American English. Less ambitiously a Scotch philologist, Ivor Brown, in *A Word in Your Ear and Just Another Word* gave a choice selection of British archaisms and contemporary slang. Another study in nomenclature was George R. Stewart's *Names on the Land* describing the origin of American place names.

Among outstanding books on philosophy Bertrand Russell's *A History of Western Philosophy*, readable as Will Durant's *Story of Philosophy*, explained the ideas of the great philosophers from the Greeks to Bergson and Dewey. Aldous Huxley's *The Perennial Philosophy* was a stimulating anthology of Western thought. The distinguished Harvard thinker Ralph Barton Perry explained his concepts in *One World in the Making*.

Social problems were treated in Henry A. Wallace's *Sixty Million Jobs*, berated as a visionary's Utopia and lauded as a brilliant solution of the major postwar problem; and Wallace Stegner's *One Nation* which discussed the intolerance and prejudice suffered by eight considerable American minority groups: Jews, Catholics, Chinese, American Indians, Mexicans, Japanese, Filipinos and Negroes. It is extremely doubtful that Roman Catholics and American Indians will agree that they are being discriminated against by their fellow-Americans.

A number of books were evoked by the bombs that "fell" on Japan. Henry de Wolf Smyth's *Atomic Energy for Military Purposes* brilliantly traced the history of the discovery, while John J. O'Neill in *Almighty Atom* described the probable effect on our civilization of the release of this new force.

Marshall Field's *Freedom is More than a Word* describes the multimillionaire publisher's struggles against news monopolies to establish his New York and Chicago dailies. The New York *Times* staff collaborated in producing *The Newspaper: Its Making and Meaning*, a book devoid of political implications.

Collections and anthologies were numerous. The *O. Henry Memorial Award Prize Stories of 1945*, edited by Herschel Brickell, contained 22 stories of which 10 depended on the war for motivation. John T. Flanagan's *America is West: An Anthology of Middle Western Life and Literature*, though a good introduction to midwestern literature, suffered from a lack of humorous selections. H. Allen Smith's *Desert Island Decameron* was a first rate humor collection. Caroline Gordon's *The Forest of the South* was a fine collection of her tales of the southland. Bennett Cerf edited a varied and creditable collection entitled *American Short Stories;* most of the humorous tales grouped in his *Laughing Stock* had seen previous publication in one of his earlier anthologies.

The outstanding photograph album was Andreas Feininger's *New York*, including 96 full page pictures with preface by John Erskine—the most distinguished collection of views of Manhattan's cyclopean structures and typical street scenes that has yet appeared between boards.

There were a number of choice cartoon collections, notably *Gardner Rea's Sideshow* and the Russian Mischa Richter's *This One's on Me*.

The death of Theodore Dreiser on December 28 evoked considerable comment. The son of German immigrants, ancestral voices spoke through his realistic novels which struck a new note in American fiction.

See also CANADIAN LITERATURE; LATIN AMERICAN LITERATURE; CHILDREN'S LITERATURE IN 1945; PHILOLOGY.

DRAKE DE KAY,
Americana Editorial Staff.

LITERATURE FOR CHILDREN. See CHILDREN'S LITERATURE.

LITHUANIA. A Baltic state south of Latvia. The country was admitted into the Soviet Union as the Lithuanian Soviet Socialist Republic on Aug. 3, 1940, but that status has not been recognized by the United States and British governments. The Lithuanian republic recognized by Soviet Russia on July 12, 1920, had an area of 40,385 square miles; forcible seizure by Poland of Vilnius and surrounding territory (19,995 square miles) on Oct. 9, 1920, was accepted as a *fait accompli* by the Conference of Ambassadors on March 15, 1923; and on March 22, 1939, Germany forced Lithuania to yield Klaipeda, or Memel, and surrounding territory (975 square miles). With reconquest of the country by Russian troops in 1944, the original boundaries were restored, Vilnius (Vilna), population 1939, 207,750, becoming the capital. The population of Lithuania, as estimated on July 1, 1941, was 3,134,070. Prior to reabsorption of Vilnius, the capital was Kaunas (Kovno), which had a population in 1939 of 152,365; other cities include Siauliai (Shavli), 31,299, and Panevezys (Ponevezh), 26,508.

Lithuania is essentially an agricultural country the soil claiming 76.7 per cent of the people. Over 49 per cent of the land is arable; 22.2 per cent forests; and 16.4 per cent unproductive. The chief crops are rye, wheat, barley, oats, potatoes, and flax. The principal exports are meat, butter, eggs, flax, and wood pulp. Under prewar conditions Great Britain was Lithuania's principal customer, taking nearly 40 per cent of her products and supplying about one third of her imports.

The German defenders of Memel had been isolated in October 1944, and with its capture on Jan. 28, 1945, by Russian forces the seaport resumed its earlier name of Klaipeda and once more became part of Lithuania. By this time the Lithuanian SSR had been reconstituted, with Justas Paleckis as chairman of the presidium (president). However, Acting Secretary of State Joseph C. Grew stated on March 3, 1945, that there had been no change in the attitude of the United States toward Lithuania and the two other Baltic states, Estonia and Latvia, and that their ministers in Washington were still accredited and recognized; and the United States Treasury announced on March 25 that in appropriate cases, it would grant licenses to American creditors for payments from frozen funds belonging to Lithuania and certain other countries. This American policy of nonrecognition of Soviet claims to the Baltic states was further emphasized on Oct. 6, 1945, by Supreme Court Justice Robert H. Jackson who, as United States prosecutor of German war criminals, wrote to the Russian, British, and French prosecutors on the War Crimes Commission that, in signing the indictment preparatory to the trials he had "no authority either to admit or to challenge, on behalf of the United States, the Soviet claims to sovereignty over" Lithuania, Estonia, Latvia, and certain other territories to which reference had been made in the indictment as being within the area of the USSR.

The Germans had wrought great destruction during their occupation of Lithuania, according to Soviet sources damage done being estimated at 17 billion rubles and 300,000 civilians having been killed. Much of the population had been lost to the country, too, from other causes. Large numbers had been removed into Germany by the Nazis to work as slave laborers, and others fled the country when it was reoccupied by the Russians in 1944, a few making their way to Sweden but the bulk escaping westward to seek protection from the advancing Anglo-American forces. Many of the Lithuanians and other Balts remaining in Germany during 1945 were reluctant to return home, swelling the large numbers of stateless displaced persons. Poland and Lithuania agreed mutually to resettle Polish and Lithuanian minorities desiring to return to their countries of origin, but such transfer would not be obligatory; those wishing to move were to be allowed to take their belongings, and at their destinations would be aided in re-establishing themselves.

The budget for 1945 estimated revenue to amount to 728,000,000 rubles. One third of government expenditure was allocated to the rehabilitation of industry and the economy of cities and villages; nearly one half was devoted to cultural measures and the improvement of living conditions, and approximately one fourth went to public education and the development of the sciences and arts. The state extended to the peasants credits totaling 20,000,000 rubles; and 75,000 peasants were given each 15.5 hectares of land (1 hectare = 2.471 acres) free of charge and without limitation of time. In 1945, seven technical schools were opened to give training in agricultural science.

LIVESTOCK. See AGRICULTURE, REVIEW OF.

LIVING, Cost of. See LABOR CONDITIONS IN THE UNITED STATES—*Prices and Price Controls.*

LLOYD GEORGE, David (1ST EARL LLOYD GEORGE OF DWYFOR), British statesman: b. Chorlton-on-Medlock, Manchester, England, Jan. 17, 1863; d. Ty Newydd, Llanystumdwy, Caernarvonshire, Wales, March 26, 1945. One of the most important figures in British and European history during the first quarter of the 20th century, Lloyd George served as prime minister of Great Britain and Ireland during the crucial years of the First World War, directed Britain's policies to victory, and played a major role at the Paris Peace Conference and in drawing up the Treaty of Versailles.

The son of a poor schoolmaster and farmer, Lloyd George was brought up in Wales, where his uncle, a shoemaker and pastor of the Campbellite Baptists, educated him for the law. Having passed his law preliminary, he was articled to a firm of Portmadoc solicitors at the age of 17, and in 1884 qualified as a solicitor himself. His local reputation was made in 1888 by a successful fight, carried to the High Court, in defense of the right of a Nonconformist to burial in the churchyard of a Church of England parish. In the same year, he was married to Margaret Owen of Mynyddednyfed Fawr, Criccieth, and was adopted as Liberal candidate for Caernarvon Boroughs. The following year he was chosen an alderman, and in 1890 he was returned at a by-election to the British House of Commons. An impassioned advocate of Welsh home rule, he won recognition in Parliament by his brilliancy in debate, and came into national prominence through his pacifist speeches in opposition to the Boer War in 1899.

On the accession of the Liberals to power in 1905, Lloyd George became president of the Board of Trade, and with the elevation of Herbert Henry Asquith to the premiership in 1908, he was promoted to chancellor of the exchequer. The celebrated People's Budget, which he introduced in 1909, provided for heavy increases on income and inheritance taxes, levies on unearned income, and heavy rates on monopolies, and unearned increments of land. The House of Lords vetoed the budget, and the Liberals, denouncing this action as a breach of the constitution, called a general election in January 1910 to decide the issue. The Liberal government was returned to power, and the Parliament Bill, depriving the House of Lords of the right to veto, was passed in 1911. In that same year, Lloyd George introduced the National Insurance Bill, providing for health and unemployment insurance.

With the outbreak of the First World War, Lloyd George, as war finance minister, took prompt and wise measures to insure and maintain financial stability. When the Liberal government was broken up in May 1915, he accepted the newly-created post of minister of munitions in the Liberal-Conservative coalition administration of Asquith and Andrew Bonar Law. Under his direction, the munitions industries were quickly mobilized and a network of arsenals soon covered the country. Late in 1915, he forced to a head the movement for compulsory military service and swung the Cabinet over to his point of view, despite Liberal sentiment against conscription. On July 7, 1916, he succeeded Lord Kitchener as secretary of state for war. However, he became increasingly dissatisfied with Asquith's conduct of the war, and on Dec. 1, 1916, under threat of resignation, he urged that the direction of the war be placed in the absolute control of a small war committee, and that Asquith should not be a member. As the Conservative leaders supported Lloyd George, Asquith resigned on December 4, and shortly thereafter Lloyd George became prime minister and first lord of the treasury.

With virtually dictatorial powers, he immediately appointed a small coalition war committee, which resulted in a general quickening of war decisions and a more decisive control of the whole machinery of government. Lloyd George's faith in victory, his driving force and dauntless courage, and his ability to keep the confidence of the British public, even in the darkest moments of the war, proved invaluable to the Allied cause. During the supreme crisis arising from the great German offensive in the spring of 1918, he appealed to President Woodrow Wilson to send all available American troops at once, and was finally able to persuade British generals to accept the unified command of the Allied armies under Marshal Ferdinand Foch. This contributed greatly to the Allied successes that marked the autumn of 1918, culminating in the collapse of German resistance in November.

Deeply committed to a policy of vengeance against Germany by the overwhelming victory of his coalition government in the general elections of Dec. 14, 1918, Lloyd George attended the Paris Peace Conference in 1919 as the principal British delegate and later served as a member of the Council of Four. Although he supported the idea of the League of Nations and was more or less disposed to make a moderate peace, ruthless demands on Germany from the home front ham-

pered his freedom of action and weakened his resistance to the militant policies of French Premier Georges Clemenceau.

During the next year he developed extensive plans for social reform, but these had to be scrapped in answer to the general demand for government economy, which weakened his radical support. But the two chief factors contributing to the downfall of the coalition government were Lloyd George's alienation of the Unionist wing of the Conservatives by arranging a series of negotiations with the Sinn Fein leaders in 1921, which resulted in the establishment of the Irish Free State; and his support of the Greeks in the Greco-Turkish War, which almost involved Britain in a war with Turkey. The Conservatives decided to withdraw support from the coalition on Oct. 19, 1922, and the Lloyd George ministry at once resigned.

In 1923, he reunited his followers with the Asquith Liberals, and two years later, when Asquith was elevated to the peerage, Lloyd George became the official leader of the Liberal Party. However, by this time the party had fallen considerably from the important position it had once occupied. He permanently broke with the party in 1931 by refusing to support Ramsay MacDonald's election platform. After 54 years of service as a member of Parliament, he announced on Dec. 28, 1944, that he would retire when his term expired; three days later, in King George's New Year's honors list, he received an earldom. Lloyd George's wife died in 1941, and two years later, he was married to the former Frances Louise Stevenson, who had been his secretary for 30 years.

Lloyd George was the author of *Is It Peace?* (1923); *The Truth about Reparations and War-Debts* (1932); *War Memoirs* (1933–36); *Organized Prosperity* (1935); and *The Truth about the Peace Treaty* (1938).

LONDON CONFERENCE. See WORLD POLITICS.

LOUISIADE. See PAPUA, TERRITORY OF.

LOUISIANA. West South Central state, United States; admitted to the Union April 8, 1812. Population (1940): rural, 1,383,441; urban, 980,439; total, 2,363,880. Land area, 45,177 square miles, divided into 64 parishes. Principal cities, with 1940 populations: New Orleans, 494,537; Shreveport, 98,167; Baton Rouge, the capital, 34,719; Monroe, 28,309; Alexandria, 27,066; Lake Charles, 21,207.

Chief State Officers, 1945.—Governor, J. H. Davis; lieutenant governor, J. E. Verret; secretary of state, W. O. Martin, Jr.; treasurer, A. P. Tugwell; attorney general, F. J. Le Blanc.

Judiciary.—Chief justice of Louisiana's Supreme Court, Charles A. O'Neil; associate justices, J. B. Fournet, Lee Pouder, A. T. Higgins, Joe B. Hamiter, Wynne B. Rogers, Frank W. Hawthorne.

Legislature.—The state legislature (Senate, 39 members; House of Representatives, 100) convenes biennially.

Education.—Public elementary schools (1943–44 school year, latest reported), 2,460; teachers, 10,891; pupils, 342,469; average yearly salary of white elementary school teachers, $1,527; of Negro teachers, $756. Public high schools, 565; teachers, 4,242; students, 90,021; average yearly salary of white high school teachers, $1,839; of Negro teachers, $1,136. Education is compulsory for children between the ages of 7 and 15, inclusive. There are 7 teacher training or normal schools in the state, one of them for Negroes. All receive financial aid from the state.

Finances.—Following is a statement of Louisiana's finances for the fiscal year 1944–45, supplied by J. H. Lester, state budget officer:

Balance in treasury, beginning of fiscal year 1944–45	$ 39,706,420.17
Receipts, 1944–45	121,993,955.25
Total	$161,700,375.42
Disbursements, 1944–45	120,052,625.49
Balance, beginning of fiscal year 1945–46	$ 41,647,749.93

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Production Preliminary 1945
Corn (1,000 bu.)	23,297	18,870	23,400
Oats (1,000 bu.)	2,103	4,880	5,015
Rice (1,000 bu.)	20,214	22,160	23,166
Cotton (1,000 bales)	643	620	420
Hay:			
Tame (1,000 tons)	356	362	406
Pecans (1,000 lb.)	7,788	14,400	9,600
Peanuts (1,000 lb.)	5,094	2,480	2,400
Sweet potatoes (1,000 bu.)	7,352	8,100	10,472
Tobacco (1,000 lb.)	141	210	165
Potatoes (1,000 bu.)	2,676	3,498	3,009
Peaches (1,000 bu.)	298	390	422
Pears (1,000 bu.)	163	245	228

LUGARD, Frederick John Dealtry, 1ST BARON, British colonial administrator: b. Jan. 22, 1858; d. Abinger Common, Surrey, April 11, 1945. Almost all of his long career was identified with tropical Africa, where, besides accomplishing much exploration, he was a pioneer in political theory and colonial policy. In 1878 he received an army commission, having previously attended Rossall School, in Lancashire, and the Royal Military College, at Sandhurst. He served through the Afghan War, 1879–80, and the campaigns in the Sudan, 1884–85, and Burma, 1886–87, and in 1888 went to Africa to lead an expedition against Arab slave traders in Nyasaland; this was five years before establishment of the British protectorate over that country, which was still almost entirely unmapped. In April 1889 he entered the service of the Imperial British East Africa Company, which held a charter for the development of what later became Kenya Colony and the Uganda Protectorate. He explored the region of the Sabaki River, planned emancipation of the slaves in mainland territory of the sultan of Zanzibar (which ultimately constituted the Kenya Protectorate), and crossed Lake Victoria into Uganda; there he settled disputes between followers of rival missionary bodies which had led to open warfare, mapped much of the region around Lake Albert Edward, and established peaceful conditions for future trade in what became one of the most prosperous British territories in Africa. Returning to Britain in 1892, he persuaded the Liberal government to abandon its announced intention of relinquishing the dominant position in Uganda which he had secured for his country in competition against French plans; and the following year he published *The Rise of Our East African Empire*, in part autobiographical, in which he outlined a system for Uganda permitting internal control to be exercised through the native chiefs. This theory of "indirect rule" he was shortly to be able to demonstrate in practice in West Africa, destined to be the scene of his greatest work as colonial administrator.

In 1894 he joined the Royal Niger Company, chartered to develop the future colony and protectorate of Nigeria, and was sent to Bornu,

where the British, Germans, and French were competing to establish spheres of influence. Here, in a region little known to white men, he persuaded native rulers to accept the suzerainty of Britain in preference to that of its rivals, and for these services he was created Commander of the Order of the Bath (C.B.). During 1896–97 he explored the Lake Ngami area of the Bechuanaland Protectorate, in South Africa, on behalf of the British West Charterland Company, and then was recalled to West Africa by the British government. With a view to checking further French penetration of the interior districts, he created a native military organization which later became the Royal West African Frontier Force, and commanded it with the rank of brigadier general. In January 1900, the Colonial Office having taken over from the Royal Niger Company all political rights in Northern Nigeria, Lugard was appointed high commissioner for the new protectorate. Here he found circumstances specially favorable for adoption of the system of indirect rule, under which able native chiefs exercised considerable administrative powers. For the most part his paramount authority was acknowledged by the people, and so successful was he in securing the co-operation of the Nigerians that in 1901 he was created Knight Commander of the Order of Saint Michael and Saint George (K.C.M.G.). During 1903, however, Sir Frederick Lugard was involved in a campaign against the emir of Kano and the sultan of Sokoto, influential Mohammedans unwilling to surrender their complete independence, but after the submission of their states the entire protectorate was brought under British control. He resigned the commissionership in 1906, and the following year he was made governor of Hong Kong; he continued to serve there until 1911.

Again called back to West Africa, in March 1912 he was appointed governor of both Southern and Northern Nigeria, still distinct administrations, with instructions to plan their amalgamation; and when this was effected in January 1914, he became governor general. He continued to head the Nigerian government through the four years of the First World War, and at its conclusion he retired. In 1920 he was admitted to the Privy Council (an honorary appointment without responsibilities), and two years later he became a member of the permanent mandates commission of the League of Nations; he took an active part in the work of this latter body for the next 14 years. In his work *The Dual Mandate in British Tropical Africa* (1922; 4th ed. 1929), he outlined the two-fold trust imposed upon colonial administrators—responsibility, firstly, for the welfare of the native inhabitants, and, secondly, development of the country for the good of all; this concept of a "dual mandate" he put into successful practice in Nigeria. He believed that colonial administration should be founded upon native institutions, for these are, in themselves, valuable agencies of government, and their development could lead to some new type of self-governing organization which, while essentially African, guaranteed the individual rights upon which democratic institutions are based. After he was raised to the peerage in 1928, Lord Lugard spoke frequently in the House of Lords on colonial matters, concerning which he was an acknowledged authority. In many parts of Africa, in the course of his lifetime, he had seen slavery abolished, systems of communication opening up the interior, and welfare measures brought to people in the most distant villages; and he saw, too, his doctrine of the "dual mandate" become the touchstone of British colonial policy.

LUMBER. During the early months of 1945, lumber continued among the most critically needed war materials. As hostilities ended in Europe and the nation's war effort was concentrated against the Japanese, war requirements mounted. Packaging, boxing and crating vast quantities of military supplies and equipment for shipment to the Pacific war theater, and establishment of bases and facilities in the newly won areas, called for an even greater volume of lumber than in the preceding months. The army classed lumber "on a par with ammunition as a combat material."

With production running behind requirements, the War Production Board placed lumbering on the "national production urgency list" in April and tightened controls on distributors' inventories and on the use of low grade lumber of certain species.

With the Japanese surrender, military requirements eased, and most of the government control orders on lumber distribution were lifted. Reconversion needs and pent-up civilian demand were expected to take up the slack resulting from cut-backs in military programs.

At the end of the war, however, lumber stocks were down to less than 4 billion board feet, compared with a prewar stockpile of some 18 billion feet. This meant that much of the production in the months following the war would have to go into replenishing stocks in the hands of distributors before a normal flow of lumber for civilian consumption could be re-established.

Production.—Lumber production in the United States in 1944 totaled 32,553,901,000 board feet, according to estimates made by the Forest Service in co-operation with regional lumber manufacturers' associations. A tabulation by states and species is given below. Production in 1944 showed a decrease of 6.4 per cent compared with 1943. Man-power shortages in the woods and at mills, and shortages of equipment were principal factors contributing to the decline. The progressive deterioration in the man-power situation is indicated by the Bureau of Labor index (1939 = 100) of employment of wage earners in logging camps and sawmills. It showed an average monthly index of 105.9 for the first quarter of 1942; 91.2 for the corresponding period of 1943; 81.6 for the first quarter of 1944; and 75.9 for the first quarter of 1945.

The total number of persons employed in sawtimber logging and mills in the first quarter of 1945 was 433,000. About 17,000 of these were women.

For the first six months of 1945, estimated lumber production was 10.3 per cent less than for the first half of 1944.

Long-Range Situation.—The 1920–40 average of annual lumber consumption in the United States was slightly under 30 billion board feet. It is likely that annual demand will be above this figure for several years after the war. Wood requirements for pulp and paper are also expected to remain at high levels materially exceeding prewar consumption rates.

Latest estimates of the rate of timber growth in American forests were made in 1938. At that time the total annual growth was estimated at

11.3 billion cubic feet. Losses from fire, insects, diseases, etc., reduced this to a net usable increment of 9.2 billion cubic feet, including both merchantable material and small timber. The volume of logs and cordwood cut for all purposes was estimated at 11.4 billion cubic feet. Timber cut thus exceeded net usable increment by 2.2 billion cubic feet. In trees large enough to yield sawlogs, the net usable increment was 26.7 billion board feet; the volume cut was 42.4 billion board feet—more than 50 per cent in excess of growth.

While the annual net increment is not likely to have changed much since 1938, the drain is now substantially larger. Annual lumber cut in the past few years has been some 30 per cent greater than it was in 1938.

According to the Forest Service, too much forest land is still being stripped of its timber and left incapable of further production for years to come. The foresters warn that the nation cannot continue to eat into its forest capital and reduce the productive capacity of its forest land without serious consequences. It will be necessary to build up the growing stock of timber. It will take many years to bridge the gap between cut and growth, and longer still to develop the full potential output of American forests. It is more than likely that before the gap is bridged there will be a period when the United States will have to get along with less lumber and other forest products.

LUMBER PRODUCTION BY PRINCIPAL PRODUCING STATES—1944
(Preliminary Estimates)
Thousand Board Feet

State	Total	State	Total
Alabama	1,844,224	Montana	404,342
Arizona	202,895	New Hampshire	283,651
Arkansas[1]	1,314,422	New Mexico	97,508
California	2,416,628	New York	248,628
Colorado	78,147	North Carolina	1,633,697
Florida	472,901	Ohio	262,681
Georgia	1,564,641	Oregon	6,274,476
Idaho	831,356	Pennsylvania	455,646
Illinois	102,212	South Carolina	850,748
Indiana	176,349	Tennessee	765,213
Kentucky	545,816	Texas	895,595
Louisiana	962,183	Vermont	159,217
Maine	370,593	Virginia	1,082,797
Maryland	111,657	Washington	4,193,762
Massachusetts	92,211	West Virginia	554,250
Michigan	552,800	Wisconsin	433,200
Minnesota	242,100	Other[2]	270,972
Mississippi	1,471,168	Total	32,553,901
Missouri	335,215		

[1] Includes Oklahoma production.
[2] Includes Connecticut, Delaware, Iowa, Kansas, Nebraska, New Jersey, Rhode Island, South Dakota, Utah and Wyoming.

LUMBER PRODUCTION BY SPECIES—1944
(Preliminary Estimates)
Thousand Board Feet

Species	Total	Species	Total
Eastern Softwoods		White Oak	1,127,786
Cypress	211,811	Yellow Poplar	534,466
Hemlock	470,947	Walnut	57,568
White Pine	960,182	Other	510,740
So. Yellow Pine	8,639,981	Western Softwoods	
Other Pine	187,778	Port Orford Cedar	35,592
Spruce	96,595	Western Red Cedar	144,621
Other	40,974	Douglas Fir	6,845,381
Hardwoods		White Fir	405,372
Ash	115,179	Western Hemlock	743,140
Basswood	122,840	Larch-Douglas Fir	1,022,425
Beech	352,453	Ponderosa Pine	3,802,039
Birch	178,370	Sugar Pine	270,634
Cottonwood	212,619	W. White Pine	313,424
Elm	189,723	Redwood	471,135
Black and Tupelo Gum	345,363	Sitka Spruce	322,733
Red Gum	868,548	Other	240,207
Hickory and Pecan	180,101	Total	32,553,901
Hard Maple	439,758		
Soft Maple	150,401		
Red Oak	1,943,015		

The United States cannot count on large-scale imports to augment its supply of lumber. Few countries of the world have surplus sawtimber. Russia has extensive forests but its own demands for forest products are increasing. The well-managed forests of Sweden and Finland produce exportable surpluses, but they have big markets close at hand. Net imports of sawn lumber and timber from Canada averaged about 500 million board feet for several years before the war, but in Canada, like the United States, timber supply is dwindling while demands from the home market and for export are increasing. Postwar exploitation of Latin American forest resources may make available larger quantities of tropical hardwod timber but the type of material obtained will be suitable mainly for cabinet woods and other specialty uses rather than for construction lumber. The great Parana pine forests of Brazil may provide an increasing volume of softwood lumber, but expanding home markets may absorb much of it.

The United States, on the other hand, may be called upon for a large volume of timber for reconstruction and development in Europe and Asia. Cutting enough timber to meet its own needs in the immediate postwar years, however, will continue to eat into its forest capital. Any large-scale exportation of timber, therefore, will further jeopardize its own future supplies.

CHARLES E. RANDALL,
U.S. Forest Service.

LUTHERAN CHURCHES OF AMERICA. Of primary importance to Lutherans of America in 1945 was the restoration of relations with the churches of Europe. American leaders went overseas in March, visiting bishops of the Scandinavian countries and headquarters of the World Council of Churches in Geneva. Dr. S. C. Michelfelder took up residence in Geneva in mid-summer, to act as representative of the American Section of the Lutheran World Convention.

Americans seek to help the European churches to recover from the effects of severe persecution by the Nazis and from damage to organization and property resulting from the war. In 1945 a fund of $2,500,000 was raised in America for work entitled "Lutheran World Action," a large part of which was allotted to European relief work. A sum of $10,000,000 for such work will be sought in 1946–47.

In consequence of efforts on behalf of the European churches, increasingly close relations are being established among the segments of American Lutheranism working together in the common project. In January a new constitution was adopted by the National Lutheran Council, which pledges two thirds of the Lutherans in America to co-operate in spheres of work never before attempted by them in common. The remaining third, the Missouri Synod, has been working with the National Council group in planning European relief.

Intensive effort to provide adequate ministry of the Lutheran Church to men and women in the armed forces continued in 1945, through assistance to army and navy chaplains and through maintenance of 75 service centers. Several new centers were opened in foreign countries during 1945. This work is gradually shading off into a new type of ministry to returning service personnel, especially to wounded veterans. Under the Division of Welfare of the National Lutheran Council, chaplains will be supplied for the vet-

erans' hospitals to the extent that the Lutheran Church is asked to provide them.

Wartime efforts of Lutherans to follow migration of population to war-industry areas has been organized in 1945 into a continuing program under the Division of American Missions, National Lutheran Council. Until population movements are stabilized, an active program to meet recurring emergencies will be undertaken.

Lutheran congregations have checked during 1945 the loss of enrolment in the Sunday and weekday schools which has continued since 1940. Efforts to restore enrolments to normal numbers are in progress. Church attendances and financial support of the congregations have been at a high level through the year.

Following are the latest statistics available on all Lutheran Churches in the United States and Canada:

Baptized members	5,390,280
Confirmed members	3,796,516
Organized congregations	16,087
Ordained ministers	13,953

In 1944, Lutherans raised a total of $88,121,784, of which $66,622,542 was for local expenses, and $21,506,346 for benevolences.

DR. G. ELSON RUFF,
Editor of The Lutheran.

LUXEMBOURG. A grand duchy of western Europe, bounded by Belgium, France, and Germany; area, 999 square miles; estimated population (1942), 301,000, the majority being Roman Catholics. The chief town is Luxembourg (pop. December 1935, 57,740), others being Esch-Alzette (27,517), Differdange (15,945), and Dudelange (13,572).

Luxembourg, from 1815 to 1866 part of the German Confederation and customs union, was in 1867 declared neutral. Invaded and occupied by the Germans in 1914, it was declared free of all German ties by the Treaty of Versailles. In 1922 Luxembourg entered into a 50-year economic union with Belgium, providing for the abolition of customs barriers between the two countries, and for the use by Luxembourg of the Belgian currency. On May 10, 1940, the Grand Duchy was again invaded and occupied by the Germans. Its ruler, the Grand Duchess Charlotte, fled to France and later established a government in exile in Montreal, Canada, some Cabinet offices being set up in London. A German decree (announced on Aug. 30, 1942) annexing Luxembourg to Germany and conscripting Luxembourgers for service in the German armies, was answered by a general strike, to which the Germans replied with a series of executions and mass deportations.

Education is compulsory for all children between the ages of 6 and 13 years. There are several colleges, advanced technical schools, and other special schools. About 32 per cent of the population is engaged in agriculture. The leading crops are oats, potatoes, and beet roots. Mining and metallurgy are the most important industries, production figures for 1938 showing 5,140,632 metric tons of iron ore, 1,436,506 of steel and 1,550,703 of pig iron. In 1938 there were 2,644 miles of roads, of which 1,301 miles were state roads, in 1937, 339 miles of railway, 796 miles of telegraph line, and 1,485 miles of telephone line. Post offices numbered 144.

On Sept. 10, 1944, Allied invading forces freed the capital of the Germans, and five days later the entire duchy was liberated. But the northern half again became the path of the Germans in their December 16 drive to the Meuse. By Jan. 27, 1945, they were finally expelled. On Feb. 23 the Belgo-Luxembourg Economic Union signed a pact with France for the exchange of Belgian coke and coal for French ore. A month later Luxembourg signed an agreement with France, the Netherlands and Belgium pledging mutual consultation on all economic matters. The Grand Duchess Charlotte returned to her country on April 13. Luxembourg was represented at the San Francisco Conference in the spring of 1945.

M

MACAO. See PORTUGUESE COLONIAL EMPIRE.

MacARTHUR, Douglas, United States Army officer: b. Little Rock, Ark., Jan. 26, 1880. Regarded as one of the ablest military leaders the United States has ever produced, General of the Army Douglas MacArthur is the son of the late Gen. Arthur MacArthur. He was graduated from the United States Military Academy in 1903, at the head of his class. In the First World War, he fought in several major Allied offensives and was twice wounded in action. In November 1930, he was appointed chief of staff of the United States Army—the only chief of staff in the history of the country whose father had held the same position, and at the age of 50, the youngest officer to hold it since the First World War. In 1935, General MacArthur was ordered to the Philippines to direct the organization of national defense for the Commonwealth government, and in 1936, was named field marshal of the Philippine Army. He was retired at his own request in 1937. On July 26, 1941, as American-Japanese relations grew more strained, he was recalled to active service, appointed commanding general of the Far East Command, and commissioned lieutenant general. After Japan's attack on Pearl Harbor in December 1941, he was named commander in chief of United States Armed Forces in the Far East, with the rank of full general, and charged with the defense of the islands. He led American and Filipino troops against the Japanese, and when forced to abandon Manila on Dec. 26, 1941, withdrew his forces to Bataan Peninsula. His magnificent defense of Bataan astounded military experts and endeared him to the American people. In March 1942, he was ordered by the late President Roosevelt to surrender his command to Maj. Gen. (now Gen.) Jonathan M. Wainwright, and evacuate to Australia. On March 16, he assumed command in that theater with the title of commander in chief of Allied Forces in the Southwest Pacific area. On March 16, 1943, General MacArthur completed his first year in Australia, a year whose first weeks proved discouraging in the extreme, bringing to

his command a slow and inadequate supply of men and matériel. He succeeded, however, in co-ordinating his forces effectively, and in May 1942, made his first tentative move on the road back. Then followed in rapid succession the Japanese defeat in the Coral Sea in that same month; the Battle of Midway on June 7; and on August 7, the beginning of the Solomon Islands campaign with the landings on Guadalcanal. In November 1942, General MacArthur personally directed the Allied drive across New Guinea's Owen Stanley Mountains to dislodge the Japanese from Buna and Gona. On March 3, 1943, he announced the destruction in the Bismarck Sea of a 22-ship Japanese convoy moving on New Guinea. With Admiral William F. Halsey, he launched a joint offensive in the Southwest Pacific on July 1, 1943. There followed Allied landings and conquests in the Gilberts, Marshalls, and the Marianas, pointing along the sea road to Tokyo. On Oct. 20, 1944, General MacArthur made good his promise to return to the Philippines with the invasion of the Philippine island of Leyte; less than three months later, Jan. 9, 1945, he invaded Luzon. The ensuing liberation of Manila and reconquest of the Philippines paved the way for operations in the Ryuku and other enemy-held archipelagoes. When the Japanese government radioed its surrender offer on Aug. 14, 1945, General MacArthur, as senior Allied officer in the Orient, was designated to arrange terms of capitulation for Japan's representatives. On September 2, aboard the American battleship *Missouri* in Tokyo Bay, he accepted the formal surrender of Japan to the Allies. He was promoted general of the army Dec. 15, 1944. Following Japan's surrender General MacArthur was made commander in chief of the occupation forces in Japan to enforce compliance with the surrender terms.

MacDOUGALL, Alice Foote, American restaurant owner: b. New York, N.Y. 1867?; d. there, Feb. 10, 1945. A well-known figure in the world of business, Mrs. MacDougall built up a $2,500,000 restaurant enterprise out of $38 and a coffee-blend formula. Her unique restaurants, designed after European patios, were among the most popular eating places in New York City during the 1920's and early 1930's.

Mrs. MacDougall started a small coffee business after the death of her first husband, who was a jobber in green coffee. The fame of this coffee spread rapidly, and she rented a tiny shop in Grand Central Terminal, where she also served food. Gradually, more shops were opened until she had six flourishing restaurants, and also sold coffee, various foodstuffs and pottery. In 1930, she entered into an agreement with other persons who took over her business and her name, and within the next two years, the entire business went into the hands of the receivers. Less than six months later, she had regained control of the business, taking over two shops personally, while friends ran the other three. However, she was active in business only three more years, retiring in 1935.

MacDOUGALL, Hamilton Crawford. *See* MUSIC *—Necrology.*

MACKENSEN, August A. F. L. von, German Army officer: b. Haus Leiptnitz, Saxony, Germany, Dec. 6, 1849; d. Celle, Germany, Nov. 8, 1945. One of the most successful German military leaders in the First World War, Field Marshal von Mackensen helped drive the Russians from Poland in 1914–15, and his troops conquered Serbia in 1915 and Rumania in 1916. Educated at the gymnasium at Torgau and the University of Halle, von Mackensen entered the 2d Death's Head Guard Hussars as a cadet in 1869 and served in the Franco-Prussian War the next year as a noncommissioned officer. He was appointed to the General Staff in 1882. After serving as lieutenant general in command of the 36th Division (1903), and general of cavalry in command of the 17th Army Corps (1908), he was made head of the Ninth Army on the Eastern Front at the outbreak of the First World War. In the early part of the war he took part in the East Prussian campaign, especially in the battles of Gumbinnen, Tannenberg, and the Masurian Lakes, but he did not become conspicuous as an independent leader until the big German offensive in western Galicia in May 1915. During that year he took command of the Eleventh Army, was promoted general field marshal, and given the command of the combined Central Power armies in the Balkans. In October and November 1915, as commander of the army sent against Serbia, he overran that nation, occupying the entire country within seven weeks. In the succeeding campaign, his army, reinforced by the Bulgarians and the Turks, occupied the larger part of Rumania by the middle of January 1917. Through a ruse the French captured him while he was directing the return of his troops through Hungary, and he was kept a prisoner from the armistice until December 1919. The next year he retired from active service. In 1933 he was made a state counselor, and Hitler utilized his prestige at parades and demonstrations, and employed him to give speeches before Hitler Youth gatherings. He was captured by Allied troops in April 1945.

MacRORY, Joseph, Cardinal, Irish ecclesiastic: b. Ballygawley, County Tyrone, Northern Ireland, March 19, 1861; d. Armagh, Northern Ireland, Oct. 13, 1945. Roman Catholic archbishop of Armagh and primate of All Ireland, Cardinal MacRory achieved note as a scholar, theologian, author, and vigorous preacher. An Ulsterman by birth and descent, Cardinal MacRory was educated at St. Patrick's Seminary, Armagh, and completed his training at Maynooth College. Early in his career, he was first president of Dungannon Academy. He was ordained in 1885. In 1887 he became professor of moral theology and sacred scripture at Olton College, Birmingham. Two years later he returned to Maynooth and held professorships until 1912, when he became its vice president. In 1915 he was appointed bishop of Down and Connor, and in 1928 archbishop of Armagh. He was created cardinal Dec. 16, 1929. Popular among all political parties, Cardinal MacRory was chosen a member of the Irish Convention, representing all parties and interests, which in 1917 and 1918 attempted to reach a solution of the Irish home-rule problem. He felt the partitioning of Ireland was a "flagrant and intolerable injustice against Catholics doomed to live under the narrow and unjust domination of the Belfast parliament and executive." In 1942 he was bitterly opposed to the presence of British and American troops in Ulster.

MADAGASCAR. An island in the Indian Ocean 240 miles off the southeast coast of Africa. A colony of France, dependencies of Madagascar are the Isles Comores (Comoro Archipelago), consisting of Grande Comore, Anjouan, Mayotte

and Mohéli; and Juan da Nova, Europa and Bassas da India. Madagascar and its dependencies have an area of 241,094 square miles, and a population of 4,037,482. In 1936, 3,758,338 of its inhabitants were Malagasy, 25,255 French and 14,343 foreigners. The capital is Tananarive (pop. 126,515), and other large towns are Majunga (23,684), Tamatave (21,421), Antsirabe (18,215), Tuléar (15,180), Fianarantsoa (14,740) and Diego Suarez (12,237). Majunga, Tamatave, Tuléar and Diego Suarez are the principal ports.

Government.—In June 1943, the French National Committee appointed M. de Saint Mart governor general of Madagascar. He is assisted by a Consultative Council of Administration, and by an advisory council which comprises French and native sections. In February 1945, a decree was promulgated establishing a local government in the south of Madagascar, which, the authorities claimed, was a first step in applying to Madagascar the federative program of administration planned at the Brazzaville colonial conference (1944), for promoting the economic, political, and social development of the French colonies.

The Budget and Foreign Trade.—The budget of Madagascar and its dependencies for 1943 was 495,644,000 francs, an increase of 19,500,000 francs over that of the preceding year. (At the exchange rate current in mid-1943 of 43.6 francs to the dollar, the total budget amounted to about $11,368,000). Revenue is derived from a poll tax, taxes on land, cattle and houses, customs, posts and telegraphs, and markets. Since the middle of 1943, export of Madagascar's chief products—coffee, vanilla, wax, rubber, graphite, and manioc—has been resumed, with a corresponding rise in imports. Madagascar's foreign trade in 1944 almost doubled that for the preceding year in both quantity and value. Exports for 1944 amounted to 132,100 metric tons, valued at 1,262,891,108 francs, compared with 72,935 metric tons, valued at 465,354,266 francs in 1943. Imports in 1944 amounted to 61,566 metric tons, valued at 653,729,676 francs, compared with 36,385 metric tons, valued at 444,110,050 francs in 1943. While the volume of both exports and imports was still less than half that for 1938, the value of both exceeded that for 1938. This increase was due in part to the rise in prices, and in part to the fact that in February 1944 the franc had been depreciated 13 per cent in Madagascar and certain other French colonies. Owing, however, to the two-way expansion in foreign trade it was possible to raise the budget for 1945 nearly 100,000,000 francs above that for 1944, and to launch a 2,000,000,000 franc loan for a ten-year program of public works.

Production.—The principal crops under cultivation are rice, manioc, corn, sweet potatoes, haricot beans, potatoes, cottee, vanilla, and sugar cane. Cattle breeding is important. The people get from the forests, barks for tanning and dyeing, and wild rubber. Minerals of greatest economic importance are graphite, mica, corundum, gold and phosphates. Meat-canning, sugar refining and soapmaking are major industrial activities; straw hats are made; and silk and cotton woven.

In 1944, despite a 14 per cent increase in acreage planted over the preceding year, important food crops were reduced by late and insufficient rainfall, which also meant the loss of several hundred thousand head of cattle. The principal minerals showed increases in production, and minerals accounted for some 83 per cent of the total value of the colony's exports. Manioc manufacturing in 1944 fell 50 per cent below normal, but peanut oil and soap factories gained 81 and 16.6 per cent respectively over the year preceding. Meatpacking, aided by shipments of tin plate from the United States, held its own, but exports were limited because of lack of space on refrigeration ships.

Communications.—Railroads have an aggregate length of 534 miles, and there are nearly 16,000 miles of roads suitable for motor traffic. Air transport services link the island with the French colonies in Africa. External telegraphic communications are both cable and wireless. In January 1945 it was reported that a bimonthly air service had been opened between Madagascar and the Comoro Islands.

Public Health.—On the basis of experimentation in cinchona cultivation, begun in 1930, Madagascar was reported in November 1944 to be able to produce quinine valued at 4,000,000 francs at an annual cost of 300,000 francs. Large quantities of asiaticoside, a drug used in combating leprosy, are being produced in Madagascar laboratories. The Tananarive School of Medicine, founded in 1896, granted diplomas to nine physicians, including three women, in 1944. Madagascar doctors of the native medical services were granted substantial increases in salary.

Education and Religion.—Education is compulsory between the ages of 6 and 14 in the primary European schools, and between 8 and 14 in the schools for natives. All children are required to learn the French language. There are two lycées, 1,011 government schools with 126,947 pupils, and 706 private schools with 94,232 pupils. At the capital there are a school of native medicine, a school of administration, and a native industrial school. The colony also has three agricultural schools.

While a large proportion of the tribes in the central districts have been Christianized, the majority of the Malagasy, particularly the tribes in outlying regions, remain heathen. Many Christian missions, French, American, British and Norwegian, are active in the island.

MADEIRA. The largest of a group of Atlantic islands comprising the Funchal District of Portugal (the Madeira Islands), approximately 535 miles southwest of Lisbon and 360 miles west of Morocco. The group, which also includes the islets of Porto Santo, the Desertas, and the Salvages, has a total area of 314 square miles and a population (1940) of about 250,000. It was first settled by the Portuguese in 1431 and was later under Spanish and English rule. Funchal, the capital (pop. 1940, 48,493), is a seaport and an episcopal see. The inhabitants are predominantly Roman Catholic. Owing to its healthful climate, Madeira is a popular health resort. The chief product is wine, exports annually amounting to about 700,000 gallons. Other products are sugar cane and bananas. Industries include fishing and the making of embroidery, linen, woolens, leather, straw hats, and baskets.

The chief imports are coal, wheat, rice, corn, and textiles. Exports, consisting largely of embroideries and wine, were greatly reduced after 1939 because of the war. In 1944, exports of embroideries — with which nearly a fifth of the population of the islands are connected—were valued at 121,669,516 escudos, compared with 68,076,014 escudos in 1943. (One escudo = approx. 4 cents in United States currency.) The United States accounts for larger purchases of

this commodity from the islands than do all other countries combined, and in 1944 its purchases were more than twice those for 1943. Exports for 1945 are expected to amount to even more than in 1944.

MAGNESITE AND MAGNESIUM COMPOUNDS. The mine output of domestic crude magnesite in 1944 was 561,450 short tons valued at $4,407,461, a figure higher than any previous year except 1943, when 754,832 tons valued at $6,071,596 were mined. This decline was caused by the closing of Basic Magnesium Inc.'s flotation plant at Gabbs, Nev., late in 1944. Caustic-calcinated magnesia sold or used by producers in 1944 amounted to 139,243 short tons valued at $6,481,963, while refractory magnesia sold or used by producers in 1944 totaled 278,490 tons valued at $8,426,049. The demand for magnesia in refractories was heavy, though less than in 1943. Sales of caustic-calcinated magnesite for oxychloride cement flooring declined, but shipments of caustic-calcinated magnesite for use in fertilizers, epsom salt, and rubber remained high. The amount of dead-burned dolomite sold in 1944 was 1,290,790 short tons valued at $11,441,612.

MAGNESIUM. Cutbacks in operation of primary magnesium producing facilities during 1944 totaled 83 per cent of installed capacity and were the result of decreased war requirements and growing ingot stocks, according to the United States Bureau of Mines. The production of primary magnesium in the United States totaled 157,100 short tons or 14 per cent less than the 183,584 tons produced in 1943. These production figures represent metal produced directly from Dow-type electrolytic plants plus the "ingot equivalent" of the raw and crystal magnesium obtained from plants using other processes of production. The total output of all primary magnesium in raw, crystal, and ingot forms, making no allowances for melting losses, was 161,935 tons in 1944, compared with 190,025 tons in 1943. Recovery of secondary magnesium totaled 14,185 short tons (including secondary magnesium incorporated in primary magnesium ingot) in 1944, as compared with 11,404 tons in 1943, and required the consumption of 17,014 tons of magnesium scrap, which was almost entirely new scrap. Even though restrictions on the use of magnesium in civilian products were removed in October 1944, virtually all the metal consumed during that year went into military uses. The most important uses were incendiary bomb casings, aircraft engine parts, airframes, and landing gears. Other important uses included rocket launcher tubes, powder for incendiaries, flares, and tracers, and as an alloying metal with aluminum. Actual consumption of primary magnesium and magnesium-base alloy (excluding secondary) in 1944 totaled 132,698 tons (magnesium content).

In 1944 exports of magnesium in primary form totaled 21,001 tons (including 16,171 tons of magnesium-base alloy) and were equivalent to about 13 per cent of the total domestic production. Of the total exports of metal in primary form, 15,958 tons went to the United Kingdom and 4,996 tons went to the USSR.

World production of primary magnesium in 1944 is estimated to have been 235,100 metric tons, or 13 per cent less than the all-time record of 269,800 tons in 1943. Meager statistical data indicate that 29 per cent of the total output was under Axis control, whereas about 71 per cent was under the control of the United Nations.

MAINE. New England state, United States; admitted to the Union March 15, 1820. Population (1940): rural, 504,169; urban, 343,057; total, 847,226. Land area, 31,040 square miles, divided into 16 counties. Chief cities, with 1940 populations: Portland, 73,643; Lewiston, 38,598; Bangor, 29,822; Auburn, 19,817; Biddeford, 19,790; Augusta, the capital, 19,360; Waterville, 16,688.

Chief State Officers, 1945.—Governor, Horace A. Hildreth; secretary of state, Harold I. Goss; treasurer, Joseph H. McGillicuddy; comptroller, J. James Allen; attorney general, Ralph W. Farris.

Judiciary.—Chief justice of the Maine Supreme Judicial Court, Guy H. Sturgis; associate justices, James H. Hudson, Harry Manser, Sidney St. F. Thaxter, Arthur Chapman, Harold H. Murchie.

Legislature.—The state legislature (Senate, 33 members; House of Representatives, 151) meets biennially in odd years on the first Wednesday in January.

Education.—At last report (1943–44) there were 1,704 public elementary schools in the state, with 4,350 teachers, and a net enrollment of 116,328 pupils. Elementary school teachers received an average yearly salary of $1,123. Public junior high schools and class B high schools numbered 16, with 151 teachers, and 3,103 students. Public senior high schools (not including academies) numbered 180, with 1,531 teachers, and 31,924 students. High school teachers received an average yearly salary of $1,726. There are four teacher training schools. The University of Maine receives financial aid from the state. Education in Maine is free for all persons between the ages of 5 and 21, inclusive. Total state appropriation for education (1944), $3,482,653.66.

Finances.—Following is a statement of Maine's finances for the fiscal year 1944–45, supplied by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$ 7,317,773.25
Receipts, 1944–45	67,698,480.47
Total	$75,016,253.72
Disbursements, 1944–45	66,430,323.63
Balance, beginning of fiscal year 1945–46	$ 8,585,930.09

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	575	640	585
Oats (1,000 bu.)	3,933	3,515	2,960
Buckwheat (1,000 bu.)	137	120	108
Barley (1,000 bu.)	118	84	84
Hay:			
Clover and timothy (1,000 tons)	478	415	536
Tame (1,000 tons)	807	729	951
Potatoes (1,000 bu.)	46,102	53,868	58,025
Apples (1,000 bu.)	600	912	180

MAKIN. See Western Pacific Islands, British, Section 2.

MALACCA. See British Malaya.

MALARIA. See Medicine; Public Health Service, U.S.; Tropical Diseases.

MALAYA. See British Malaya.

MALDIVE ISLANDS. See Ceylon.

MALINOVSKY, Rodion Yakovlevich, Soviet Army officer: b. 1898. Like most of his fellow officers in the Russian high command, Marshal Malin-

ovsky is young. Born 48 years ago in Odessa, he was off to the wars as a lad of 15, a stow-away aboard a troop train bound for a First World War front. He was attached to a machine gun crew; saw 15 months' continuous service; was wounded; and before his 18th birthday, was promoted corporal and awarded the St. George Cross. In 1915, he was sent to France where he fought with French, British, and American troops. He returned to Russia in August 1919 to join the revolutionary forces, and with the civil war's end, remained in the Red Army. In 1930 he completed studies at Frunze Military Academy, and was appointed chief of staff, later commander, of a cavalry regiment. At the time of the German invasion, he was a corps commander in Bessarabia. In the spring of 1942, he commanded an army of Siberian troops defending Stalingrad, and in the Russian counteroffensive at the year's end, his forces blocked General von Mannstein's efforts to relieve General von Paulus' Sixth German Army trapped in the city. Throughout 1943 and 1944, Marshal Malinovsky continued to take a major role in the Russo-German conflict, directing his forces for a brilliant series of victories—the capture of Rostov (Feb. 14, 1943), of Kharkov (August 23), and Stalino (September 8); a juncture with General Konev's troops (October 26) which virtually freed the Dnieper (Dnepr) bend area. On Feb. 22, 1944, his Third Ukrainian Army liberated Krivoi Rog, vital iron ore center, and on April 10, Malinovsky's home city, the Black Sea port of Odessa. A year later, the Marshal was on the soil of "Greater Germany," directing operations of the Second Ukrainian Army against the Austrian capital of Vienna. His troops co-operated with troops of Marshal Tolbukhin's Third Ukrainian Army to complete Vienna's occupation on April 13. On Aug. 8, 1945, Marshal Malinovsky commanded the Trans-Baikal Army for the brief Soviet campaign in Japanese-occupied Manchuria.

MALTA. An island (95 square miles) in the Mediterranean Sea, 58 miles south of Sicily, which with Gozo (26 square miles) and Comino (1 square mile) constitutes a British colony (122 square miles), having a civilian population (Dec. 31, 1943) of 272,121. Valletta (pop. 22,779) is the capital, chief port, and an important naval base. The governor (Lieut. Gen. Sir Edmond Schreiber appointed in September 1944) heads a Council of Government comprising 8 official and 12 unofficial members (10 of the latter elected). During 1945 a National Assembly was engaged in drafting a new constitution for the colony, implementing the undertaking given in 1943 by the British government that responsible government was to be restored in Malta after the war. Revenue in 1943–44, including a grant from the British Treasury of £1,350,000, was £4,026,373; and expenditure was £3,731,831. With cessation of hostilities in the Mediterranean, revenue increased to four times the prewar figure, and far exceeded expenditure. English is the official language, and Maltese is the official language of the courts. Trial by jury in both civil and criminal cases was resumed in 1944. President Franklin D. Roosevelt and Prime Minister Winston Churchill conferred in Malta in February 1945, prior to attending the Yalta Conference with Marshal Stalin. During the war against Italy, 1940–43, casualties among civilian Maltese totaled 5,286 (1,579 killed); and of nearly 45,000 houses in Malta, 27,953 were damaged by enemy action (5,316 totally demolished, 5,019 severely damaged, and 17,618 partially damaged). When water supplies were running short, military engineers, by boring, discovered unlimited quantities from a gusher, 300 feet down, in the center of the island.

In 1944–45 there were 94 primary schools (approximately 35,000 pupils); 130 night schools; 4 secondary schools for girls (about 660 students); a lyceum for boys (700 students); a preparatory secondary school for boys and girls (490 pupils); 1 technical school (120 pupils); and 60 private schools (12 state aided). Royal University averages about 250 students.

Chief agricultural products (from 41,000 acres) are wheat, barley, tomatoes, potatoes, onions, cumin seed, cotton, grapes, figs, and other fruits. In 1938 livestock included 34,470 goats, 15,936 sheep, 8,799 horses, mules and asses, and 4,540 cattle. Fishing is of importance. Butter, cotton, filigree, lace, and wine are manufactured, and fruit is canned. The colony has no railroads; buses plying on good roads link the towns. A public ferry runs between Malta and Gozo.

MANCHURIA (Japanese MANCHUKUO). A region including the three northeastern provinces of China, bounded (roughly) on the west by Inner Mongolia and the Khingan Mountains, on the south by the Yellow Sea, on the southeast by Korea, on the east by the Maritime Territory of the Union of Soviet Socialist Republics, and on the north by the Argun-Amur rivers. Original home of the Manchus, former rulers of China. Prior to the Japanese occupation (1931–45), Manchuria, with its exceptionally rich soil, had been attracting large numbers of immigrants from crowded central China. Its area was given in 1930 as 363,610 square miles, its population at that time being estimated by Chinese authorities at about 30,000,000. Occupied by the Japanese, beginning in 1931, its area was extended in February 1932 to include the province of Jehol, and the territory so enlarged was set up as the nominally independent state of Manchukuo under Japanese control. During the Japanese occupation, which ended with the defeat of Japan in August 1945, the nominal government of Manchukuo consisted of a chief executive, a privy council, and a cabinet. Henry Pu-yi, formerly boy emperor of China, was crowned emperor of Manchukuo under the name of Kang Teh, in March 1934; but the real power lay in the hands of the Japanese vice ministers, and the Japanese ambassador. The area of Manchukuo coincided with the provinces of Heilungkiang, Kirin, Liaoning (Fengtien), and Jehol, as shown on the official map of China (*China Handbook, 1937–1943*, New York, 1943). Manchuria was specifically mentioned in the communiqué (of Dec. 1, 1943) following the Cairo Conference, among the territories stolen from the Chinese by the Japanese which were to be restored to the Republic of China after Japan's surrender. This agreement was confirmed, insofar as the USSR was concerned, under the terms of the Sino-Soviet treaty of August 14, 1945. (For details of this treaty affecting Manchuria, see section PRINCIPAL EVENTS in this article.)

Prior to the Japanese surrender, the area of the Japanese puppet state (Manchukuo) was given as 503,013 square miles, its population (est. 1940), as 42,233,954. These figures (like others derived from Japanese sources during the

occupation period) were considered unreliable by the Chinese authorities.

Restoration to China of the southern end of the Liaotung Peninsula, which had been known as Kwantung (q.v.), leased to Japan since the Russo-Japanese War (1904–05.), will add to the territory an area of 1,438 square miles, and a population (1939) of 1,750,000. Dairen (Dalny), in Kwantung, had an estimated population (1939) of 533,696; Port Arthur (Chinese, Lushun; Japanese, Ryojun), 145,286. The principal cities of the puppet state of Manchukuo were: Mukden (Moukden, Feng-Tien, pop. 1944, 1,135,801); Harbin (661,984); Hsinking (Changchun, Kwanchengtse, the capital, 544,202); Antung (1939, 315,242); Anshan (1944, 213,865); Yingkow (Newchwang, 180,871); and Kirin (173,624).

Education and Religion.—In 1939 there were 15,877 primary schools with 1,579,169 pupils, 254 secondary schools with 60,368 pupils, 16 normal schools with 4,045 pupils, 66 vocational schools with 5,043 pupils, and 14 colleges with 4,372 students. The chief religions, named in order of the number of their adherents, are: Buddhism, Taoism, Roman Catholicism, Mohammedanism, and Protestant Christian sects.

According to a news bulletin of the National Geographic Society, the Japanese railway authorities established research laboratories and experimental farms, hospitals, schools, and libraries, as well as auxiliary industrial services, along the Manchurian railway lines, aiming thereby to make them bearers of Japan's culture as well as means of exploiting Manchuria's material resources.

Finances.—The general budget for 1941 was balanced at 649,220,000 yuan; special budget revenues amounted to 1,849,077,161 yuan, expenditures reaching 1,758,175,290 yuan. From 1935 until the Japanese surrender, the yuan was linked with the Japanese yen. In February 1941 Japanese investments in Manchukuo amounted to 2,471,200,000 yen, chiefly in the South Manchurian Railway Company and in state companies.

Products.—The soil is extremely rich and fertile, the arable land being estimated in 1937 as 80,890,656 acres. The principal crops are soybeans (which made the territory the wealthiest part of old China), with a yield in 1940 of 3,827,000 metric tons, kaoliang, millet, corn, wheat, rice, and cotton, with some Manila hemp and hempseed, flax, herbs, and tobacco. Livestock in 1940 included 1,683,200 cattle, 1,998,000 horses, and large numbers of other draft, meat, and dairy animals. The forest area amounts to 216,805,540 acres (roughly ⅔ of the total area), making lumber another leading industry. Mineral resources include coal (with an estimated yield in 1941 of 24,500,000 metric tons), iron (reserves of which before the war were believed to be many times those of Japan), gold, silver, lead, magnesite, and oil shale. Important steel and shale-oil plants are located at Anshan and Fushun, flour and oil mills at Harbin, and factories (recently established) for the manufacture of textiles, beer, and metal products, at Mukden and Newchwang.

Foreign Trade.—Foreign trade (both import and export) has been predominantly with Japan. Principal exports (valued in 1939 at 826,190,000 yuan) were in order of their value: soybeans, bean cakes, coal and bean oil. Principal imports (amounting in 1939 to 1,783,366,000 yuan), were in order of their value: machinery and tools, iron and steel, wheat flour, paper, sugar, cotton fabrics, and raw cotton. During the Second World War the Japanese came to depend upon recently developed Manchurian industrial centers, particularly Anshan, for much of their iron and steel, chemicals and explosives, fuel oils, building materials, machinery and locomotives.

Communications.—At the beginning of 1941 the railway mileage in Manchukuo totaled 7,590, chiefly in state railways, of which the Japanese, since 1933, had financed about 3,500 miles, designed mainly for strategic use against China or the Soviet Union, and depended upon by the Japanese as a major economic and strategic resource during the Second World War. Manchukuo in 1940 had some 27,900 miles of motor highways, over 4,000 miles of navigable inland waterways, and nearly 10,000 miles of airways. It is mainly upon the railways that Manchuria has depended for its economic growth. Harbin, in the north, became the hub of the two main Manchurian railway lines and of river traffic. Mukden, in the south, became the junction point of lines from northern Manchuria, Korea, Dairen, and Tientsin. Dairen, the planning of which as a modern city, railway terminal, and port was begun by the Russians in 1898, has over two miles of piers and docks, and can accommodate steamers of up to 25,000 tons. As an all-year harbor free to world commerce, to be shared by China and the Soviet Union under their recent agreement, it is expected to become not only the main outlet of the new Manchuria, but one of the leading ports of northeast Asia. Antung, on the Yalu River, on the Korean border, is another important port.

Principal Events.—On Aug. 9, 1945, following a Soviet declaration of war against Japan, Red Army forces invaded Manchuria from three directions: from the west, in the region of Lake Dalai and Lake Bor (Buir), in the northeast, across the Ussuri and Amur rivers, opposite Khabarovsk, and along the eastern Manchurian frontier, west and north of Vladivostok. On August 23, after rapid Red Army advances toward the main centers, it was announced by Premier Stalin that the Soviet forces had occupied the entire territory, including Dairen and Port Arthur, and were advancing into Korea. On the same day it was revealed that on August 17 the whole Kwantung army, Japan's main strategic reserve on the continent of Asia, had surrendered unconditionally to the Red Army command. Henry Pu-yi, puppet emperor of Manchukuo, had been captured at Mukden and interned. The Japanese surrender in Manchuria led within a few days to the release of a number of high-ranking Allied prisoners of war, including Lieut. Gen. (now General) Jonathan M. Wainwright, defender of Bataan and Corregidor, who had been taken to Manchuria from Formosa in November 1944.

In the meantime, on Aug. 14, 1945, a treaty had been negotiated at Moscow between Premier T. V. Soong, of China, and Premier Stalin, under which it was agreed that Manchuria should be restored to China (Soviet forces to begin their withdrawal three weeks after Japan's formal surrender). The Chinese Eastern and South Manchurian railways are to be combined into one system, to be called the Chinese Changchun Railway, which, it was agreed, will be jointly owned and operated by China and the Soviet Union for 30 years, after which it is to be returned to China without payment. The port of

Dairen, to be placed under joint control of the two signatory countries, is to be open to all nations as a free port. Port Arthur (where the Russian Fleet, in 1904, was crippled by the Japanese, in an attack resembling that on Pearl Harbor) is to be used (according to the treaty of 1945) by both China and the Soviet Union as a naval base, the Chinese assuming responsibility for its civil administration, and the Soviet authorities for its defense. By the end of October industrially advanced Manchuria had become a potential center of civil war in China between the Kuomintang armies, near its southern frontier, and the Chinese Communists and other elements. By the end of 1945, the forces of the Chinese central government, with the cooperation of the governments of the USSR (under Sino-Soviet treaty) and of the United States, had occupied strategic centers in Manchuria and were reported to be moving into Jehol Province, which the Japanese had included in their puppet state of Manchukuo, and which had formerly been considered part of Inner Mongolia.

MANGANESE. The production of manganese ore containing 35 per cent or more manganese in 1944 was the largest since 1918 and the second most productive year on record, according to the United States Bureau of Mines. Shipments of this ore totaled 247,616 short tons compared with 205,173 tons in 1943. Of the manganese ore shipped from mines in 1944, 241,170 tons were metallurgical ore, 6,224 tons were battery grade, and 222 tons were for miscellaneous uses. The value, f.o.b. mines, of manganese ore shipped in 1944 was $9,014,875.

Shipments of ferruginous manganese ore containing 10 to 35 per cent manganese amounted to 297,136 short tons in 1944; shipments of manganiferous iron ore containing 5 to 10 per cent manganese amounted to 1,190,476 tons valued at $2,519,018 for the same period; and 1944 shipments of manganiferous zinc residuum totaled 247,402 short tons. Production and shipments of ferromanganese in 1944 totaled 702,632 short tons and 715,059 tons respectively, the value of shipments being $91,406,229. Production and shipments of spiegeleisen totaled 165,530 short tons and 155,325 tons respectively, the value of shipments being $4,851,490.

MANITOBA. Known as the Red River Settlement before it entered the Dominion in 1870, Manitoba is the central province of Canada. It is bounded east by Ontario, west by Saskatchewan, north by the Northwest Territories and the 440 mile shore line on Hudson Bay, and south by the states of North Dakota and Minnesota. Its area is 246,512 square miles (219,723 square miles of land; 26,789 of water), and its population (1941 census) 729,744, of which 407,871 was rural. The principal cities with their 1941 populations are Winnipeg (the capital), 221,960; St. Boniface, 18,157; Brandon, 17,383; Portage la Prairie, 7,189.

Government.—Manitoba is governed by a lieutenant governor and a legislative assembly of 55 members elected for five years.

The coalition government under the premiership of Stuart Sinclair Garson, K.C., and comprising members of the Liberal-Progressive, Progressive Conservative, and Social Credit parties, was dissolved in September 1945 and appealed for re-election on October 15. The vote resulted in the return to office of the government with 43 supporters, and an opposition group represented by 10 members of the C.C.F. (Co-operative Commonwealth Federation), 1 Labor-Progressive and 1 Independent. In the electoral division of the city of Winnipeg 10 members are elected under the proportional representation, (Hare) system, thus providing for representation of minority groups; all other electoral divisions of Manitoba elect members by the use of the alternative ballotting system, assuring representation of majority candidates. Manitoba is represented by 6 members in the Canadian Senate and elects 17 to the House of Commons.

Education.—A legislative committee presented a report on educational reforms in the spring of 1945. Emphasis is placed on creation of larger units of school administration, increased grants distributed on the basis of equalization of community resources, increased minimum for teachers' salaries, and increased facilities for vocational programs, the latter in the present period being principally devoted to rehabilitation of veterans. Dr. A. W. Trueman of Saint John, N.B., was appointed to the presidency of Manitoba University, and subsequently in August to the chairmanship of the Royal Commission on Adult Education, other members being Dr. Harold Innis of Toronto University, John Grierson, late head of the Canadian Film Board, J. J. Deutsch, economist, of the Winnipeg *Free Press* and late of the Bank of Canada, and Frances MacKay, director of extension work for women in the Manitoba government service. Arising out of the educational rehabilitation program for veterans, the university enrolment increased from 2,632 to 4,290 for 1945. There were 100,243 pupils enrolled in elementary grades in 1944, and 18,831 in secondary grades; these attending in 4,205 departments located in 2,090 school buildings. Scholarships now number approximately 700 for students attending secondary schools, the university and teacher training institutes.

Production.—Estimates for 1945 are: field crops, $143,000,000; farm animals, $34,500,000; poultry $16,250,000; garden, $2,250,000; honey and wax, $500,000; dairying, $22,000,000; fur farming, $1,000,000. The 1941 census recorded 58,686 farms in the province with 16,891,322 acres on occupied farms.

In 1944, 33,413,900 lbs. of marketable fresh water fish were landed by 6,288 commercial fishermen, which netted them $3,536,378. Varieties are pickerel, saugers, tullibees, pike, perch, sturgeon with whitefish and goldeyes, the best known and most desired on the Canadian and international fish markets. In 1943–44 there were 570 licensed fur farms, and an estimated value of raw furs exported of $8,063,521. Manitoba has extensively developed conservation programs and planned muskrat areas in the north and successfully operated trap-line control measures for the wild fur industry. Fur auction sales at Winnipeg are leading international markets. Mineral production in 1944 was valued at $13,728,126, of which $10,379,677 represented metals. Copper, zinc, gold, silver and cadmium are among the metallic group. Nonmetallic production consisted of clay products, structural materials, peat moss and salt. The latter is produced and refined at the town of Neepawa.

Health.—The Department of Health and Public Welfare administers all laws relating to health and welfare. In 1945 there was instituted a complete health plan to assure rural citizens equal facilities with those of the cities. The plan is in process of being made a reality by an educational program throughout the province. It comprises creation of Health Units, providing preventive

service, diagnostic aids, medical care and community hospitals, with varying degrees of extensive government financial aid. Welfare developments in the year include creation of the Old Age and Blind Persons Board within the department. Decentralization of welfare administration to regional areas is under way. Health and welfare programs are being established to provide for adaptation of the federal government health insurance and social security policies within the present framework.

Rural Electrification.—Arising out of a royal commission report presented by Dr. Emerson P. Schmidt, chairman, in 1942, the Manitoba Power Commission in the summer months of 1945, as a culmination of a preceding educational campaign started a provincial-wide farm electrification project. As recommended, government financial support is extensive in respect to capital installations. Availability of equipment is a present factor in the construction program.

Agriculture.—Policies have been instituted for the creation of a province-wide veterinary service with special scholarship inducements offered for increasing the veterinary personnel. Financial assistance has been provided for vaccination of beef and dairy cattle to eliminate Bang's disease. The Manitoba Federation of Agriculture, at its 1945 annual meeting, created a new constitution to include co-operative and credit union organizations and hereafter will be known as the Manitoba Federation of Agriculture and Co-operatives.

Finances.—Provincial and local government revenues remain buoyant without changes in rates of taxation in general. This is illustrated by the peak profit in 1945 of $1,307,939, by the Manitoba Government Telephone System (with ownership and operation of two radio stations); Manitoba Government Liquor Control Commission sales in 1944 of $12,571,892; and increased turnover taxation returns from race meets, this latter bearing a higher rate on pari-mutuals. The Manitoba government presented a brief to the Dominion-Provincial Conference on Reconstruction in July which embodied proposals for readjustments in internal Canadian financial, economic and social relationships and upon the successful conclusion of which a broad postwar program is based, which includes programs established and for which plans are prepared by urban and rural communities. In addition to projects herein interpreted and under way, others include highways and public works and developmental plans for natural resources.

J. L. JOHNSTON,
Provincial Librarian.

MANUS. See NEW GUINEA, TERRITORY OF.

MARCUS ISLAND. A small island in the Pacific Ocean, north of the Tropic of Cancer, roughly in line between Wake and the Bonin Islands (Japanese), and only 1,185 miles (four hours by air) southeast of Tokyo. Fortified by the Japanese, it was heavily raided in September 1943 by United States naval vessels and carrier-based planes. During 1944 it was frequently bombed, and in October heavily shelled in a prolonged naval bombardment. Bypassed, with its estimated 5,000 Japanese troops in the Allied sweep to the west, it was a target for several further air attacks during the first half of 1945, and became subject to Allied occupation following the general Japanese capitulation, the garrison of 2,445 surrendering on August 31 to the commander of the U.S. destroyer *Bagley*.

MARIANAS ISLANDS. See JAPANESE SOUTH SEA ISLANDS.

MARINE CORPS, United States. The United States Marine Corps, in 1945, helped to deliver the final great blows which brought victory over Japan, and then took part in the occupation of that defeated country.

At Iwo Jima and Okinawa, and in the skies over Japan itself, marines carried to a climax their traditional amphibious mission, which had commenced in the Second World War at the moment the first Japanese plane attacked Pearl Harbor. The Marine Corps began the year with six divisions and four aircraft wings, comprising the bulk of the Fleet Marine Force in the field, ready for Pacific action.

On February 19, in the wake of a heavy pre-invasion naval and air bombardment, the 4th and 5th Marine divisions landed on the beaches of Iwo Jima, 760 miles from Tokyo. The small gourd-shaped island was stoutly defended by enemy troops dug into volcanic Mount Suribachi on the south and huge rock formations in the north. The major objectives, two airfields, were on the flat land between.

Although subjected to terrific artillery and mortar fire and hampered by the shifting sands which bogged down mechanized equipment, the marines drove a wedge across the island and isolated those troops on Mount Suribachi. On February 21, the 21st Marines of the 3d Marine Division, which was in corps reserve, began landing at 1530 where it was subsequently used on the left flank of the 4th Marine Division. The 3d Marine Division (less one regiment combat team) was not committed as a division between the 4th and 5th divisions until February 25. Division commanders were Maj. Gen. Graves B. Erskine of the 3d Division; Maj. Gen. Clifton B. Cates of the 4th Division; and Maj. Gen. Keller E. Rockey of the 5th Division. The three divisions were under command of the 5th Amphibious Corps, headed by Maj. Gen. Harry Schmidt.

On February 22, the attack on Mount Suribachi was begun. Twenty-two and a half hours later, after a resolute but bitter advance, men of the 28th Marine Regiment raised the American flag atop the volcano. The total weight of the offensive then turned northward, and by February 25, Motoyama Airfield No. 2 had been captured.

On March 6, the three divisions launched their final major assault. Opposition remained stubborn, with most survivors of the garrison fighting to the death, until their last stand was broken at Kitano Point, and Iwo Jima on March 16 was announced as secured.

Marine casualties totaled 19,938, including 4,189 dead. Conservative estimates placed the Japanese dead at 21,000. Five months later, as the war ended, a total of 1,259 prisoners had been taken.

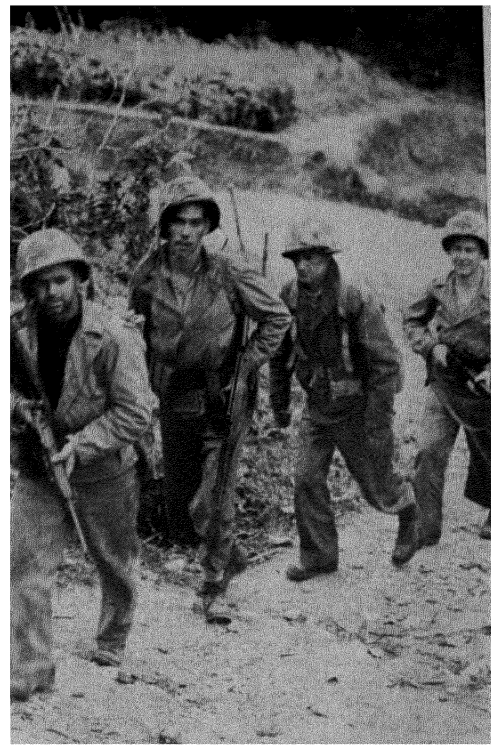
Iwo Jima, as a fighter plane and reconnaissance base and B-29 way station, contributed much to the pressure which speeded Japan's final capitulation.

The 3d Marine Amphibious Corps, commanded by Maj. Gen. Roy S. Geiger, joined the 24th Army Corps to comprise the Tenth Army which struck at Okinawa, principal island of the Ryukyus chain, on Easter Sunday, April 1. The 3d Amphibious Corps included principally the 1st, 2d and 6th Marine divisions and six battalions of corps artillery. Of the 2d Division, only the 8th Regimental Combat Team eventually was committed.

MARINE CORPS



Marine spotter plane flies an artillery control mission over the front lines at Okinawa.



Columnist Ernie Pyle (third from left) trudges along with First Division Marines on patrol in the interior of Okinawa.



Official U.S. Marine Corps Photographs

Marines hurdle a stone wall as they drive across Okinawa.

Okinawa, just 325 miles southwest of southern Japan, was strongly garrisoned by the enemy, but the Tenth Army's initial landings near Katena were virtually unopposed. The 1st and 6th Marine divisions drove northward to attack the upper two thirds of the island, while the 24th Army Corps wheeled south.

The marines advanced swiftly against sporadic resistance, with concentrations of enemy forces seeking at several points to ambush the leading units. Fighting, on these occasions, was severe. Despite these encounters and the mountainous terrain, a battalion of the 22d Marines reached the island's northern tip on April 13.

Three army divisions meanwhile had collided with the bulk of enemy troops on the Naha-Shuri-Yonabaru line, one of the strongest defense systems in the Pacific. Progress against this maze of underground positions was slow.

On April 21, marines seized Taka and on April 22, Sesoko, islets just west of Okinawa, after which they moved to join the fighting in the south. On April 30, the 1st Division was attached to the 24th Corps and began relieving the 27th Infantry Division on the extreme right flank of the line. The 1st Division later swung over to the north of Shuri when the right half of its sector was taken over by the 6th Marine Division. On May 8, the 6th Division relieved elements of the 1st Marine Division in the right of the 3d Amphibious Corps' zone of action.

Marine ground and air forces on Okinawa were at this time visited by the commandant of the Marine Corps, Gen. Alexander A. Vandegrift, who was touring corps activities in the Pacific. General Vandegrift on April 4 had been promoted from lieutenant general to the rank of general, becoming the first marine commandant on active duty ever to be appointed to four-star rank.

Slowly Tenth Army lines surged forward. By May 28, the 6th Division had secured Naha. Shuri fell May 31. The 1st Division broke through to the coast on June 7, thus closing the escape route for Japanese forces on Oroku Peninsula. The Japanese fell back to their secondary defense line. On the 79th day of the campaign, the 8th Regimental Combat Team, after seizing two outlying islands—Iheya and Aguni, went into action and drove into Nagasuku. Organized resistance crumbled.

On June 18, General Geiger took over temporary command of the Tenth Army after Army Lieut. Gen. Simon Bolivar Buckner, Jr., had died in action. On June 19, General Geiger's promotion to lieutenant general was confirmed. On July 3 he was named commanding general of the Fleet Marine Force, succeeding Lieut. Gen. Holland M. Smith, who took command of the Marine Corps Training and Replacement Center at San Diego, Calif.

Okinawa was secured on June 21. The enemy's total land casualties in the marines' sector included 42,000 killed. Marine casualties totaled 16,013, of which 3,044 were dead.

The Fleet Marine Force was preparing for further amphibious action when Japanese surrender came. Marine units, including the 2d and 5th divisions and the 4th Regiment (6th Division) thereupon gained the Leathernecks' final goal—Japan—not as stormy invaders, but as part of the Allied occupation forces. The 4th Regiment was among the first occupying units to move into Japan from American warships.

On September 4, Brig. Gen. Lawson Sanderson, commanding general of the 4th Marine Air Wing, accepted the surrender of the Japanese garrison on Wake Island, site of heroic marine action in the first days of the war.

Aviation.—At the turn into 1945, the 1st Marine Air Wing was providing close air support for army ground troops in the Philippines and the 4th Wing was carrying on its relentless neutralization raids against bypassed enemy islands in the Marshalls and Marianas. The 2d Wing was reorganizing for what was to be a major role in the Ryukyus campaign, while the 3d Wing—in command of marine aircraft in the Hawaiian area—was acting primarily as a training unit.

Marines were flying fighters, night fighters, dive bombers, torpedo bombers, medium bombers, artillery spotting planes, photographic planes, and transports. In February, marines joined their navy brethren in flying from carriers of the fleet. Administratively, these marine carrier units were under the command of the 3d Wing. Marine squadrons were operating from the *Franklin* and the *Bunker Hill* at the time those ships were severely damaged by enemy attacks.

Before the battle for Iwo Jima had ended, a marine torpedo bombing squadron (VMTB–242) was operating from that island; it was joined, as the island was secured, by a squadron of marine B–25s (VMB–612).

The Tactical Air Force (TAF), Ryukyus, which blazed the aerial way in the conquest of Okinawa and other Ryukyus islands, was comprised of the 2d Marine Air Wing and the 301st Army Fighter Wing. The TAF was commanded first by Marine Maj. Gen. Francis P. Mulcahy, who was succeeded on June 11 by Marine Maj. Gen. Louis E. Woods.

During the three-month period from April 7 to July 6, the TAF destroyed 611 enemy planes in aerial combat at the loss of only four. Of that total, 2d Wing airmen were credited with 495 enemy planes, and 301st Wing fliers accounted for 116. The missions carried out by these units ranged from support for ground troops to attacks on the home islands of Japan.

Women's Reserve.—The Marine Corps Women's Reserve entered 1945 at its peak strength of 19,000. Enlistments were being accepted only to fill small replacement needs. In January, the first contingent of women marines to go overseas by congressional authorization arrived at Oahu, Hawaii, for duty at Pearl Harbor and Ewa Field. In the next seven months, the number on duty at Oahu rose to 1,000.

Strength.—At the war's end, Marine Corps personnel totaled approximately 478,000 men and women, by far the greatest numerical strength of the corps' history. The greater part of this strength was devoted to the combat landing and defense units and their supporting troops. Of the remainder, some 118,000 were in Marine Corps aviation; 12,000 were assigned to combatant naval vessels as integral parts of the crews, and others guarded naval establishments and staffed marine posts and stations at home and abroad.

Immediately upon the surrender of Japan, the Marine Corps announced a demobilization plan, the main feature of which was release of reserve personnel according to a point system. Credit was given for length of service, sea or foreign duty, combat stars and decorations, and parenthood. Critical release scores used in the initiation of the plan were 85 points for male and 25 points for female personnel. These scores subsequently underwent a series of graded reductions.

ROBERT L. DENIG,
Brigadier General; Director, Division of Public Relations, U.S. Marine Corps.

MARINE CORPS WOMEN'S RESERVE. At the beginning of the history-making year of 1945, the first contingent of women marines destined for overseas service was in its final phases of training at the staging area at the Marine Corps Base, San Diego, Calif. On January 28, this group, consisting of 5 officers and 160 enlisted women, walked down the gangplank onto the Territory of Hawaii.

These marines were to form the nucleus of an overseas detachment of women which eventually numbered nearly one thousand. Established in their own areas at Moanalua Ridge and Ewa Air Station on the island of Oahu, they organized a motor transport unit and maintained their own military police, post exchanges, and mess halls. More important, they released combat men for the war zones by taking over in offices, control towers, radio rooms, parachute lofts, photographic laboratories, and work shops. They also released for stateside duty, or for well-deserved furlough, battle-tired veterans who had seen many months of strenuous overseas service.

Meanwhile, in the states, the Women's Reserve continued to function as before. About 40 per cent of its members were engaged in some phase of aviation. In other assignments, at camps, supply depots, air stations, and rehabilitation and training centers, they continued their duties as motor transport drivers, communications workers, electricians, welders, chemists, draftswomen, mechanics, typists, and administrative clerks.

Victory in Europe did not affect their status since almost the entire Marine Corps effort has always been concentrated in the Pacific.

In August, however, the abrupt termination of the war with Japan brought changes in activity. Official emphasis swung from the prosecution of the war to the task of putting the Marine Corps on a peacetime basis. To this end, shortly after V-J Day a point system of discharge was announced, and on September 10 the first women marines to be discharged from headquarters under that system received their final papers.

Four separation centers for the women marines were quickly established, and rehabilitation personnel were assigned to each. By early October, the machinery for group discharge was in operation.

Meanwhile, many women marines whose work had become nonessential were transferred to new assignments to aid in the demobilization of both men and women reservists. Paymaster, muster rolls, transportation, and discharge departments worked on the release machinery. The historical division compiled data on Pacific campaigns. Women marines in the casualty divisions notified the families of prisoners of war as those prisoners were released. Clerks, stenographers, messengers, and mimeograph operators on dwindling staffs labored to handle the flood of details attending the war's end.

Proud of their record, with their "mission accomplished," women marines turned once more towards their families and peacetime living. And each woman, as she prepared for civilian life, found that she could doff the uniform, but not the spirit, of the United States Marines.

RUTH CHENEY STREETER,
Colonel; Director, Marine Corps Women's Reserve.

MARINE INSURANCE. See INSURANCE.

MARITIME COMMISSION, United States. The wartime ship construction program of the United States Maritime Commission was curtailed immediately on the surrender of Japan. The commission's building schedule, directed increasingly in 1944 and 1945 toward production of vessels expressly for military uses or capable of being converted to war purposes, was cut by cancellation of contracts for 135 vessels, some of which were under construction. Readjustments were made to fit the changed situation and the commission began the task of fitting into the nation's peacetime requirements the huge merchant fleet that was constructed under compulsion of war.

This cessation of construction brought to a virtual close the wartime shipbuilding program that, in the period of less than four years between the attack on Pearl Harbor and the end of hostilities, had increased the cargo-carrying capacity of the United States oceangoing merchant fleet by about 400 per cent, in addition to the considerable military construction and the building of several hundred small craft.

As of Sept. 1, 1945, United States shipyards had built under direction of the Maritime Commission, 5,558 oceangoing vessels, whose aggregate deadweight tonnage was 54,630,105 tons. (Deadweight tonnage is the actual cargo-carrying capacity of a vessel, expressed in tons of 2,240 pounds.) This total included dry cargo ships of various types; tankers; wooden, steel and concrete barges; ore carriers; harbor and oceangoing tugs. Also vessels built directly for or converted to military service, including aircraft carriers, frigates, transports, hospital ships, tank carriers, oilers and tenders and special combat transport and attack ships completed by the navy on Maritime Commission hulls.

In addition to these larger types there were about 1,000 small barges and 200 power boats built under Maritime Commission supervision.

The Maritime Commission was established under provisions of the Merchant Marine Act of 1936. After surveying the nation's maritime resources the commission inaugurated a building program designed to correct the deficiencies that were disclosed, both as a means of providing water transportation for carriage of domestic and foreign trade, and of providing an auxiliary for the armed services in times of emergency.

The initial program was for 50 ships a year for a decade. Simultaneously with delivery of the first vessels under this schedule, in the summer of 1939, tension in Europe increased so greatly that unusual demands were made for American shipping, and as a security measure the construction schedule was doubled. As war engulfed Europe in 1940 the schedules were redoubled and again in 1941, with the advent of lend-lease and a great toll of British shipping being taken by Axis raiders, the schedule was again doubled.

It was in 1941 also that the Liberty ship was put into production, and the first deliveries of these mass assembled ships were made in December. The methods and techniques developed in succeeding months to build these vessels were the principal reasons for the enormous production of ship tonnage that came in 1942 and 1943. The ships and tonnage produced in Maritime Commission shipyards increased in this way:

Year	Liberty* ships	Other vessels	Total vessels	Dwt. tonnage
1939	0	28	28	341,219
1940	0	54	54	638,037
1941	2	101	103	1,159,765

Year	Liberty* ships	Other vessels	Total vessels	Dwt. tonnage
1942	542	218	760	8,091,833
1943	1,232	717	1,949	19,270,746
1944	720	1,066	1,786	16,447,366
1945 (to Sept.)	104	774	878	8,681,140
	2,600	2,958	5,558	54,630,106

*Does not include 60 built for Great Britain, or any Liberty ship conversions or modifications from the original dry cargo types.

In the above table there can be traced the influence of world events and the course of the war upon the Maritime Commission's construction schedules. The first of the commission's C-types, the original long range designs, were delivered in June 1939. That year 28 vessels of all types were delivered. Production continued at about the same pace in 1940, but was almost double in 1941, after acceleration had gotten well under way.

The immediate effect of the Liberty program can be seen in 1942. The year's production soared to seven or more times that of 1941, and in 1943 the original construction goal of 16 million deadweight tons of shipping for the year was exceeded by three million tons.

After putting almost 3,000 new vessels afloat by the end of 1943, and with indications of permanent improvement in the rate of losses by enemy action, the commission felt itself enabled to curtail the building of Liberty ships and devote more of its time and facilities to production of faster cargo vessels and tankers and special vessels for the needs of the armed services.

As a result of this policy the number of vessels and deadweight tonnage produced in 1944 is not as high as 1943. This was not, however, an indication of lessened work or decreased schedules. It was rather a reflection of the construction of larger units of more complicated design and the building of vessels for military purposes, which have little deadweight carrying capacity.

The number of oceangoing merchant vessels under control of the War Shipping Administration, as of Nov. 1, 1945, was 4,442, aggregating about 46.8 million deadweight tons. More than 240,000 officers and men were in merchant service on that date, a force that had grown from about 55,000 at the time of Pearl Harbor.

The War Shipping Administration was created in February 1942 and empowered to requisition all American flag oceangoing merchant vessels except those under jurisdiction of the armed services, and all enemy vessels in United States ports; to control all United States ocean shipping except that under military control; and to act as representative of the United States in directing United Nations shipping in the interest of the war.

This last function was pursued by a coalition of the powers of the War Shipping Administration with those of the British Ministry of War Transport in a Combined Shipping Adjustment Board, which directed from Washington and London the strategic movements of Allied merchant vessels. As the war progressed and conditions changed, a set of "Principles" was agreed to in August 1944 by several of the members of the United Nations to govern international shipping until after the defeat of Japan. These principles were put into effect in May 1945 and were to be in effect six months after termination of hostilities in the Pacific, unless there was earlier agreement to disband them.

E. S. LAND,
Vice Admiral, U.S.N. (Ret'd), Chairman, U.S. Maritime Commission and War Shipping Administrator.

MARQUESAS ISLANDS. See FRENCH OCEANIA.

MARSHALL, George Catlett, United States Army officer: b. Uniontown, Pa., Dec. 31, 1880. As the United States Army's chief of staff, General Marshall directed the army's development from a force of less than 200,000 men in 1939 to a vast global organization with an operating strength of about 8,300,000 men at the end of the European war in May 1945. Throughout both the European and Pacific wars, he was a pivotal member of the Joint and Combined Chiefs of Staff and a participant in all the great Allied military conferences. In his third and last biennial report to the nation (released Oct. 10, 1945) on the progress of the Second World War from July 1, 1943, to June 30, 1945, he warned the American people that "the only effective defense . . . . is the power of attack"; that the "nation's destiny clearly lies in a sound permanent security policy" based upon two essentials—intense scientific research and development and maintenance of a permanent peacetime citizen army. In late October 1945, General Marshall appeared before the Senate Military Affairs Committee in support of the War Department's proposal to consolidate the United States Army, Navy, and air groups into a single department of armed forces. On November 20, his resignation as chief of staff and the appointment of Gen. Dwight D. Eisenhower, as his successor, was announced by President Truman. On November 26, he relinquished his office, with a salute from the President as "the man to whom the nation owes its World War II victory and its future." An estimated 20,000 persons gathered in the Pentagon Building in Washington, D.C., to say farewell and to witness his acceptance of the oak leaf cluster in lieu of a second Distinguished Service Medal for "victory." On November 27, General Marshall was appointed President Truman's special envoy to China, with rank of ambassador, replacing Patrick J. Hurley. He left for his new post December 15.

Unable to obtain an appointment to West Point, General Marshall attended the Virginia Military Institute, entered the army upon graduation and thereafter was graduated from the Infantry-Cavalry School, and the Army Staff College at Leavenworth, Kans. In the First World War, he saw action with the 1st Division in France, was later selected by General Pershing to be chief of operations for Gen. Hugh Drum's First American Army. He served in China from 1924 to 1927, becoming in the latter year, an instructor at the Army War College. From 1927 to 1932, he was assistant commandant of the Infantry School. In July 1938, he joined the General Staff as chief of the War Plans Division; was deputy chief of staff of the United States Army, 1938–39; acting chief of staff, July–September 1939; and on Sept. 1, 1939, became chief of staff with the rank of general. In December 1944, he was named general of the army, following congressional legislation creating that new rank. General Marshall's military awards include the Distinguished Service Medal (First World War), Victory Medal with five bars, Croix de Guerre with palm, and Order of Suvorov, 1st degree (USSR). See also section on *General Marshall's Report* under WORLD WAR, SECOND.

MARSHALL ISLANDS. See JAPANESE SOUTH SEA ISLANDS.

MARTINIQUE, mär'tĭ-nēk'. French colony of the West Indies having an area of 385 square

miles and a population (1944 estimate) of 255,000. It is administered by a governor, assisted by a Privy Council, and is directly represented in the French Chamber by a senator and two deputies. An elected general council votes the budget, and municipal councils administer the 32 communes into which the colony is divided. Pupils in the primary schools number 33,260 (1938), and there is a co-educational lycée, a high school, a commercial school, and a law school, mostly at Fort-de-France, the capital and chief city (pop. 53,000—estimate 1943). Sugar and rum are the chief products. Cacao, pineapples, bananas, coffee, tobacco, and vanilla are also grown. Sugar factories and distilleries are the principal industrial establishments. The sugar mills, which operate their own narrow-gauge railroads, were reported in 1945 to be having difficulty in obtaining equipment, their locomotives, freight cars, and repair parts not being interchangeable because each railway has a different gauge. Because of the island's dependence on the sugar crop, furthermore, and because of its lack of fuels and minerals, the inhabitants of Martinique have to import much of their food and fuel, medical supplies, building materials, and other manufactures. The last prewar budget, for 1938, was estimated at 120,000,000 francs.

MARYLAND. South Atlantic state, United States: one of the original thirteen states. Population (1940): rural, 740,893; urban, 1,080,351; total, 1,821,244. Land area, 9,887 square miles, divided into 23 counties and the independent city of Baltimore, which has the status of a county. Chief cities, with 1940 populations: Baltimore, 859,100; Cumberland, 39,483; Hagerstown, 32,491; Frederick, 15,802; Salisbury, 13,313; Annapolis, the capital, 13,069.

Chief State Officers, 1945.—Governor, Herbert R. O'Conor; secretary of state, William J. McWilliams; treasurer, Hooper S. Miles; comptroller, J. Millard Tawes; attorney general, William Curran.

Judiciary.—Chief justice of the Maryland Court of Appeals, Ogle Marbury; associate justices, Edward S. Delaplaine, Stephen R. Collins, C. Gus Grason, Ridgely P. Melvin, William L. Henderson, Charles Markell.

Legislature.—The state General Assembly (Senate, 29 members; House of Delegates, 123) convenes biennially on the first Wednesday in January in odd years.

Education.—Public elementary schools (1944–45), 943; teachers, 5,838; pupils, 218,525; average yearly salary of elementary school teachers, $1,931. Public junior high schools (Baltimore City), 20; teachers, 766; students, 20,008. Public senior, senior-junior, and regular high schools, 188; teachers, 2,439; students, 57,637; average yearly salary of public junior and senior high school teachers, $2,307. Education in Maryland is compulsory for all children between the ages of 7 and 16, inclusive; children from 14 to 16 years may be excused from school attendance if regularly and lawfully employed in Baltimore City, provided they have completed the elementary school of 6 grades. There are five state teacher training colleges, two of them for colored students. The following receive financial aid from the state: the University of Maryland, College Park and Baltimore; Princess Anne College (Negro), Princess Anne; Johns Hopkins University, Baltimore; Washington College, Chestertown; St. Johns College, Annapolis; Western Maryland College, Westminster; Morgan State College (Negro), Baltimore; St. Mary's Female Seminary Junior College, St. Mary's City. State superintendent of schools, Thomas G. Pullen, Jr.

Finances.—Following is a statement of Maryland's finances for the fiscal year 1944–45, supplied by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$ 29,863,452.63
Receipts, 1944–45	72,974,253.24
Total	$102,837,705.87
Disbursements, 1944–45	73,482,881.29
Balance, beginning of fiscal year 1945–46	$ 29,354,824.58

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	16,333	17,150	17,242
Oats (1,000 bu.)	1,052	1,170	1,221
Buckwheat (1,000 bu.)	102	120	132
Wheat (1,000 bu.)	7,465	8,906	7,605
Barley (1,000 bu.)	1,575	2,174	2,070
Rye (1,000 bu.)	240	319	270
Hay:			
Clover and Timothy (1,000 tons)	343	295	398
Tame (1,000 tons)	514	486	632
Sweet potatoes (1,000 bu.)	1,134	1,280	1,280
Tobacco (1,000 lb.)	28,325	32,160	23,100
Potatoes (1,000 bu.)	2,612	1,824	2,231
Apples (1,000 bu.)	1,829	1,863	795
Peaches (1,000 bu.)	391	602	312
Grapes (tons)	425	250	100

MASCAGNI, Pietro, Italian composer: b. Leghorn (Livorno), Italy, Dec. 7, 1863; d. Rome, Aug. 2, 1945. Mascagni won international fame in the early 1890's with *Cavalleria Rusticana,* a melodramatic one-act opera which still remains a popular favorite in the repertoire today. Mascagni's father, a baker, intended that his son should be a lawyer and discouraged the boy's attempts to learn music, but young Mascagni studied secretly with Alfredo Soffredini at the Institut Luigi Cherubini. Later adopted by his uncle, Mascagni devoted himself in earnest to music and in 1879 his Symphony in C minor and a *Kyrie* were performed. In 1881 a cantata, *In Filanda,* was favorably mentioned in a prize competition sponsored by the International Exhibition of Music in Milan. His next composition, a setting of a translation of Schiller's *Ode to Joy,* was so successful that a wealthy nobleman offered to pay for his education at the Conservatory of Milan. Mascagni studied there with Ponchielli and Saladino, but he found the regular course of study too restricting and joined a travelling opera company as conductor, later settling at Cerignola, near Foggia, where he gave piano lessons and managed the Municipal School of Music. In 1889 the publishing company of Sonzogno offered awards for the best operatic composition, and Mascagni's *Cavalleria Rusticana,* based on a story by Giovanni Verga, and written in eight days and nights, won first prize. One of the leading products of the *verismo* or realist school, *Cavalleria Rusticana* was first presented at the Constanzi Theater in Rome on May 17, 1890, and won the composer 40 curtain calls and subsequently the Order of the Crown. The opera was produced in Berlin in 1890; in London and New York in 1891; and in Paris in 1892. Mascagni's 14 later attempts to repeat this success proved futile, although *L'Amico Fritz* (1891), *Iris* (1898), and *Le Maschere* (1901) were fairly popular. His other operas include

I Rantzau (1892); *Guglielmo Ratcliff* (1895); *Silvano* (1895); *Zanetto* (1896); *Amica* (1905); *Isabeau* (1911); *Parisina* (1913); *Lodoletta* (1917); *Il Piccolo Marat* (1921); *Nerone* (1935); and the operetta *Si* (1919).

MASSACHUSETTS. New England state, United States; one of the original thirteen states. Population (1940): rural, 457,245; urban, 3,859,470; total, 4,316,721. Land area, 7,907 square miles, divided into 14 counties. Principal cities, with 1940 populations: Boston, the capital, 770,816; Worcester, 193,694; Springfield, 149,554; Fall River, 115,428; Cambridge, 110,879; New Bedford, 110,341; Somerville, 102,177; Lowell, 101,389; Lynn, 98,123.

Chief State Officers, 1945.—Governor, Maurice J. Tobin; lieutenant governor, Robert F. Bradford; secretary of state, Frederic W. Cook; treasurer, John E. Hurley; comptroller, Francis X. Lang; attorney general, Clarence A. Barnes.

Judiciary.—Chief justice of the state's supreme judicial court, Fred T. Field; associate justices, Henry T. Lummus, Stanley E. Qua, Arthur W. Dolan, James J. Ronan, Raymond S. Wilkins, John V. Spalding.

Legislature.—The state's chief legislative body, the General Court (Senate, 40 members; House of Representatives, 240) convenes annually on the first Wednesday in January.

Education.—Public elementary schools (latest report, 1943–44 school year), 1,887; teachers and other school officials, 13,549; pupils, 348,562; average yearly salary of elementary school teachers, $2,017 (est.). Public junior high schools, 169; teachers and other school officials, 4,000; students, 89,865; public senior high schools, 271; teachers and other school officials, 6,519; students, 130,132; average yearly salary of junior and senior high school teachers, $2,403 (est.). Education is compulsory for all children between the ages of 7 and 16, inclusive. There are nine state teachers colleges, and the Massachusetts School of Art. These schools and Bradford Durfee Textile School, Fall River Textile School, Lowell Textile School, and the Massachusetts Maritime Academy receive financial aid from the state. Total state appropriation for regular public, day school education (1943–44), $5,855,915; appropriation by cities and counties, $66,452,683.

Finances.—Following is a statement of finances for the fiscal year 1944–45, supplied by John E. Hurley, state treasurer:

Balance in treasury, beginning of fiscal 1944–45	$ 40,750,301.55
Receipts, 1944–45	235,986,047.66
Total	$276,736,349.21
Disbursements, 1944–45	229,560,080.72
Balance, beginning of fiscal year 1945–46	$ 47,176,268.49

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Production Preliminary 1945
Corn (1,000 bu.)	1,677	1,763	1,849
Oats (1,000 bu.)	183	165	192
Hay:			
Clover and timothy (1,000 tons)	347	252	367
Tame (1,000 tons)	502	404	583
Tobacco (1,000 lb.)	7,965	9,381	9,170
Potatoes (1,000 bu.)	2,474	3,120	3,240
Apples (1,000 bu.)	2,550	2,747	574
Grapes (tons)	415	250	150

MAURITANIA. See FRENCH WEST AFRICA.

MAURITIUS. An island in the Indian Ocean, 600 miles east of Madagascar and 2,000 miles southwest of Ceylon, a British colony. The area of Mauritius is 720 square miles, and the population (1941 est.) 408,392; dependent islands, the largest of which is Rodrigues, have a combined area of 87 square miles and a population of 13,024. The indigenous population of Creoles (descendants of 18th-century French planters) is far outnumbered by Indian migrants, while English people are in a distinct minority; there is also a Chinese community. Both French and English are official languages, the former being in more general use; French law, based upon the *Code Napoléon*, has been preserved. Port Louis (pop. 57,803), on the northwest coast, is the capital and principal seaport; it is unhealthful for whites, whose principal residential area is on the central plateau at Curepipe, 16 miles distant. The governor (Sir Henry C. D. C. MacKenzie-Kennedy appointed July 5, 1942) is assisted by an Executive Council, and by a Legislative Council of 27 (8 exofficio members, 9 nominated and 10 elected on a restricted franchise). Revenue in 1941–42 amounted to 23,661,338 rupees, and expenditure was 22,122,292 rupees.

Revision of the constitution was under discussion during 1945, when the Indian community, considering its proposed future representation inadequate, appealed to the Indian National Congress to exert pressure on its behalf. Elementary education is free but not compulsory. The government conducts 51 primary schools (enrolment of 15,680 in 1941) and gives financial assistance to 74 others conducted by religious bodies (enrolment 24,899); three quarters of the latter are Roman Catholic. The state also maintains Royal College, for secondary education, and aids 9 other secondary schools.

Of the total cultivated area of 185,775 acres, 149,525 are under sugar, about 20,000 under fiber, and 16,250 under tea, copra, and other crops. Because of a badly distributed rainfall, the tea crop in 1944 was only 1,820,900 pounds (1,930,670 pounds in 1943), the sugar crop was in excess of 400,000 tons. Two cyclones which hit the island in January-February 1945 were the worst experienced since 1892; all standard crops, vegetables, and fruits were largely destroyed, and many thousands of people were rendered homeless. During March-April an epidemic of poliomyelitis struck down an unprecedented proportion of the people, and this affliction had scarcely passed when a third cyclone, in April, did still more damage. The effect was a calamitous crop outlook for 1945. The sugar crop for 1944–45 was not expected to exceed 200,000 tons, a reduction of more than 50 per cent on the previous year's output, and it was anticipated that other production would suffer a marked decrease. During 1941–45 the British Treasury made grants to the colony totaling £11,300 for improving educational and health services and the development of agriculture.

Many of the necessaries of life have to be imported from abroad. Rice and grain are obtained from India, flour from Australia and India, oxen from Madagascar, and minor imports from South Africa and elsewhere. Cotton and woolen textiles, machinery, and medicines are imported mainly from Great Britain. The metric system of weights and measures is in use; the currency is based on the Mauritius rupee, divided into 100 cents. Mauritius has a good railroad system covering most of the island (a standard gauge line totaling 106¼ miles in length, and 14 miles

of narrow gauge). Motor bus services also traverse many of the 862 miles of roads.

McCAIN, John Sidney, United States naval officer: b. Teoc, Carroll County, Miss., Aug. 9, 1884; d. Coronado, Calif., Sept. 6, 1945. As commander of Navy Task Force No. 38, one of the designations of the Carrier Task Force, Third Fleet, a command he held alternately with Vice Admiral Marc A. Mitscher, Vice Admiral McCain headed his group in the operations that prepared the way for the Peleliu campaign, maintained a protective air cover over General MacArthur's invasion of Leyte, and helped to win the second battle of the Philippine Sea. He succeeded Admiral Mitscher as commander of the Carrier Task Force on Oct. 29, 1944, and headed the groups in clashes with the Japanese air force over the Philippines, in the cover of the invasion of Mindoro, in the strikes against Luzon, Formosa, and the Ryukyus, and in the final air attacks on the Japanese mainland.

McCLOY, John, United States Naval officer: b. Kingston, N.Y., 1876?; d. Leonia, N.J., May 25, 1945. One of the few men to win two Congressional Medals of Honor, and a holder also of the Navy Cross, Lieutenant Commander McCloy was a hero of the Boxer uprising in 1900, the Vera Cruz incident of 1914, and the First World War. Lieutenant Commander McCloy joined the merchant marine at the age of 15, and the navy in March 1898. He was a coxswain when he earned his first Congressional Medal of Honor in the Boxer Rebellion, "for distinguished conduct in the presence of the enemy in the battles of June 13, 20, 21, 22, 1900, while with the relief expedition under Vice Admiral Seymour (of the British Navy)." As chief boatswain, he received his second Congressional Medal for "eminent and conspicuous conduct" at Vera Cruz, where he led a flotilla of three picket launches. On Nov. 11, 1920, the Navy Cross was awarded to McCloy for distinguished service as lieutenant commander of the U.S.S. *Curlew,* a minesweeper operating in the North Sea. He wore three other navy decorations, one for service in the West Indies campaign, one for the Philippines, and another for China. The State of New York, in recognition of his valor, also presented a medal to him.

McCORMACK, John, Irish tenor: b. Athlone, Eire, June 14, 1884; d. Booterstown, County Dublin, Eire, Sept. 16, 1945. The charm of John McCormack's voice and his genial personality won for him, particularly in the concert field, a place that was supreme among tenors.

The son of a poor Irish family, McCormack attended the Marist Brothers School, and in 1896 entered Summer Hill College, County Sligo. At the age of 18 and without previous instruction he won the gold medal at the National Irish Festival (Feis Ceoil). He became a member of the Dublin Catholic Choir in 1903 and began to study seriously with the organist and choirmaster, Vincent O'Brien. The following year he sang with the choir at the St. Louis Exposition, after which he went to Milan where he studied with Sabatini. He made his debut as a concert singer at a Sunday League Concert in London on Feb. 17, 1907, and his operatic debut followed on October 15 of the same year, when he appeared as Turiddu in *Cavalleria Rusticana* at Covent Garden in London. He was so successful that in 1909 he sang at the San Carlo Opera House in Naples, and made his New York debut on November 10, at the Manhattan Opera House, as Alfredo Germont in *Traviata.* He was subsequently engaged by the Chicago-Philadelphia Opera Company; the Chicago Grand Opera Company; the Metropolitan Opera Company; and the Monte Carlo Opera Company. He sang with Tetrazzini in London, New York, and Parma, and toured Australia in Italian opera with Melba in 1911. He toured the United States in concert in 1912 and Australia again in 1913. From that time on he devoted himself mostly to concert work, and appeared regularly on the concert stages of the principal cities of the United States, Canada, England, and Ireland. When the United States entered the First World War, he contributed his services to all kinds of patriotic purposes and through his efforts raised nearly a million dollars for all causes. In 1918 his income was estimated at $300,000, the income from phonograph records alone amounting to $180,000, a greater amount than the royalties received by any other two singers combined. In 1919, McCormack became a United States citizen, and in 1928 was raised to the papal peerage, with the title and dignity of count. He sang for the first time over the radio on Jan. 1, 1925, and in 1929 made the talking motion picture, *Song O'My Heart.* His retirement was marked by a farewell tour in 1938, but in 1944 he started a tour for the British Red Cross. His health broke down and he was ordered by his doctor to give up singing.

McCREERY, Sir Richard Loudon, British Army officer: b. Feb. 1, 1898. Lieutenant General McCreery commanded the British Eighth Army for the final phase of the Allied campaign in Italy, November 1944–April 1945. He launched the Eighth's spring offensive on the Adriatic side of the front on April 10. There followed in rapid succession the Eighth's capture of Argenta on April 18; of Bologna, with Truscott's American Fifth, April 21; of Ferrara, key to 6 potential escape routes for von Vietinghoff's forces, April 24. McCreery's men took Genoa on April 27 and Venice on April 29, the same day on which all Nazi troops surrendered unconditionally in Italy, and southern and western Austria. On May 1, troops of his New Zealand Division effected a junction with Marshal Tito's Yugoslav forces at Monfalcone, and 2 days later, occupied the port of Trieste. General McCreery assumed command of the British Eighth Army in early November 1944, replacing Lieut. Gen. Sir Oliver Leese. His Second World War record includes service in France (1940); in the Middle East as chief of the general staff (1942); and Tunisia (1943). He is a product of Eton and Sandhurst, and in the First World War, saw service in France, 1915–17, and again in August-November of 1918.

McGUIRE, Thomas B., Jr., United States Army Air Force officer: b. Paterson, N.J., Aug. 1, 1921; d. in action over the Philippines, Jan. 7, 1945. At the time of his death, Major McGuire was the leading American active ace with 38 Japanese planes to his credit. In a letter from Lieut. Gen. George C. Kenney, commanding the Allied Air Forces in the Pacific, to the flier's widow it was indicated that an accident in some way disabled Major McGuire's plane, making him an easy prey to defending enemy fighters. He became the leading ace when Maj. Richard I. Bong, credited with downing 40 Japanese planes, returned to the United States on leave.

McNARNEY, Joseph Taggart, United States Army officer: b. Emporium, Pa., Aug. 28, 1893. On Nov. 20, 1945, General McNarney was appointed commanding general, United States Forces in the European theater; commander in chief, United States Forces of Occupation in Germany; and United States representative on the Allied Control Council for Germany. In this three-fold job, he replaced Gen. Dwight D. Eisenhower. General McNarney had previously served as acting Allied supreme commander in the Mediterranean theater. He is a graduate of the United States Military Academy, 1915; the Air Corps Tactical School, 1921; the Command and General Staff School, 1926; and the Army War College, 1930. In the First World War, he was attached to the air service overseas. His promotion to the rank of full general (temporary) was confirmed March 28, 1945.

MEASLES. See MEDICINE.

MEAT PACKING. Total meat production in the United States in 1945 from all sources was about 22,500,000,000 pounds. Of this amount, the meat packing industry handled about 17,600,000,000 pounds, with total sales of $5,000,000,000. More than 4,000 meat packers, large, medium and small, purchased in 1945 live animals for meat from 5,000,000 farmers and ranchers who received cash for their livestock the day of sale. Until V-E Day, May 8, meat packers operating under federal inspection set aside substantial proportions of their total meat production for government use. During the middle of the year, the United States armed forces consumed about 72 million pounds of meat weekly. Just to carry this much meat to camps or seaports would take 18 freight trains, each 100 cars in length. During the year government meat requirements for the armed services and other war services, including lend-lease, was about one-third of all meat produced under federal inspection, or one-fifth of the total production of meat from all sources. For the first eight months of the year, the meat packing industry continued to operate under 75 government regulations and 1,200 amendments. Soon after V-J Day, many of these regulations, such as meat set-asides, were adjusted or completely eliminated, making more meat available for consumers.

Meat packers slaughtering hogs in 1945 found that pork production per hog was above that for the previous year, and above the average for the 1936–1944 10-year average. The amount of beef produced by federally inspected packers in January, February and March of 1945 was 9 per cent more than in the same period in 1944. Beef production in April, May and June was 9 per cent greater than in those same months in 1944. The average increase in beef production the last six months of 1945 was 10 per cent, compared with the same six months of 1944.

With the exception of January, veal production in meat packing plants under federal inspection was from 15 to 27 per cent lower, respectively, for the other eleven months of 1945, compared with 1944. Meat packers slaughtering sheep and lambs from January through June under federal inspection dressed 12 per cent more lamb than during the first six months of 1944. The last six months of 1945 showed decreases ranging from 12 to 20 per cent, respectively, compared with the same six months of 1944.

Civilian meat consumption per capita in 1945 was estimated at about 135 pounds. This compares with the per capita consumption in 1944 of 150 pounds, and with the 5-year 1935–39 average of 126 pounds. Meat allocations for October, November and December of 1945 by the United States War Meat Board will allow civilians an annual average per capita rate of almost 148 pounds. If meat supplies were available, however, the civilian demand based on OPA ceiling prices would be approximately 165 pounds per person.

The civilian allocation of 4,847,000,000 pounds of meat for the fourth quarter of 1945 is nearly 30 per cent more than was allocated to them for the third quarter in 1945. This increase in civilian allocation was made possible by reductions in military requirements and the seasonal increase in livestock marketings. Compared with the same quarter a year ago, the United States military allocation of 764,700,000 pounds is a reduction of more than 50 per cent from the amount allocated to this outlet and other war services for the same months in 1944.

With the fulfillment of V-E Day and V-J Day, the meat packing industry had practically no reconversion problem. What uncertainties there were in unemployment in meat packing grew out of the seasonal variations in the flow of livestock from the farms and ranches to the market centers and slaughter houses.

The meat packing industry afforded jobs in 1945 to approximately 250,000 persons. The element of security and the stability of employment ranks high. During 1945, more exclusive meat items for the armed forces and other war services were developed by meat packers and food technicians of the subsistence laboratory of the U.S. Quartermaster Depot. During the entire period of the war these new meat items totaled 50. Included among these were such foods as dehydrated corned beef hash, dehydrated meat and rice, dehydrated pork, canned pork and apple sauce, canned ham and sweet potatoes, canned meat balls and spaghetti, and scores of other foods. Undoubtedly, some of these new meat, and meat and other foods items will be packed for civilians when the army no longer requires them exclusively.

Scientific development has made great strides in the last year in the development of research work on frozen and pre-packaged meats. Among the greatest contributions of the meat industry to the war effort in 1945 was the further development of three-way, frozen boneless beef. Briefly, this called for removal of all bones from whole sides of beef, dividing the remainder into three types of cuts: for roasting and broiling, for braising and stewing, and for ground beef. Each of these three types of beef was packed in boxes weighing around 50 pounds each, and quick frozen to seal in the natural juices and preserve the natural color. Packing beef in this form saved space in shipping and storage.

New by-products of packinghouse products developed, as well as refinements of some of those already being marketed, were features of the scientific development which has characterized the industry in the past decade.

JOHN CUTTING,
American Meat Institute.

MEDICAL INSURANCE. See INSURANCE.

MEDICINE, Progress in. During the past year, as in other recent years, most of the important advances in the field of medicine have occurred along lines which are of paramount importance to the medical services of the armed forces. In the

AMERICANA ANNUAL for 1944 it was pointed out that medical research had received an enormous impetus during the years of the Second World War, due to the mobilization of medical manpower, the co-ordination of research facilities, the allocation of federal funds, and the unusual opportunities which the organization of the armed forces provides for the gathering of medical data on a large scale. Such factors have accelerated the pace of medical research and expedited the solution of problems in this field just as identical factors made possible the development of the atomic bomb in a space of time which would have been considered impossible shortly before the war. This acceleration of scientific research during the war years has been widely recognized, and as a consequence, there is at present pending in the 79th Congress considerable legislation designed to perpetuate into the postwar period some sort of federal control of research activities like that which seems to have been so productive of good during the war years. It is projected that such control would include the field of medical research as well as the field of national defense and the physical sciences, such as chemistry. Leaders in medicine recognize the values which such control might have, but fear that these might be outweighed by the defects inherent in any system of federal control, such as political or bureaucratic domination, suppression of private initiative, and loss of individual freedom of action.

Antibiotics.—The discovery that a mold, penicillium, produced a substance, penicillin, which would destroy bacteria within the human body, and thus cure diseases due to bacteria, inaugurated a new era in the treatment of infections. Almost everyone has by now heard of penicillin. It is less generally known that penicillin is only one of a large number of substances which have been isolated from molds and shown to have potent actions against bacteria. Such substances have also been derived from bacteria and found to have powerful effects against other bacteria. In a recent review of this subject, 30 antibiotics, as these agents are called, were listed. Most of these have already been found unsuitable for use in human disease because they exert serious toxic effects as well as antibacterial ones. Some of them, such as *gramicidin*, derived from a bacillus found in soil, are too toxic to be administered internally but may be applied with good effect externally, as in the treatment of skin infections. As yet no other antibiotic has even approached penicillin in general value in the treatment of human disease. Most of these substances are still in the process of investigation and have not yet been tried in treatment on any wide scale. This whole field is still in its infancy and it is hoped that as time goes on it will provide many therapeutic agents of great value to suffering humanity. As Sir Alexander Fleming, the discovered of penicillin, has himself remarked, it would be remarkable indeed if the first useful antibiotic to be discovered, penicillin, should be the last, or even the best.

Penicillin.—In the AMERICANA ANNUAL for 1944 the new drug for the treatment of bacterial infections, *penicillin*, was discussed briefly. At that time our knowledge of this therapeutic agent was in its formative stage, since supplies of the drug were sharply limited due to difficulties in its production. Moreover, use of the drug had been restricted to certain conditions of paramount importance in the armed forces. During the past year methods and facilities for the manufacture of penicillin have been so improved that this medicine is now available in unlimited quantity to both the armed forces and the civilian population. It has been used on a huge scale in the treatment of disease and our knowledge of it has advanced so rapidly that it is already possible to make a fairly definitive statement about it.

Penicillin is now prepared for clinical use in the form of highly purified and concentrated sodium and calcium salts. In order to assure the antibacterial effects of the drug in the living organism, it is necessary to maintain a concentration of penicillin in the blood. Since a single dose of the drug is absorbed almost immediately from the site of injection and completely excreted from the body by way of the urine in between 2 and 4 hours, it is necessary to give doses every 2 or 3 hours throughout the duration of treatment in order to maintain a proper concentration in the blood. At the present time it is considered desirable to give each dose by intramuscular injection, since penicillin is rapidly destroyed by the acid in the stomach; only a small proportion of the drug reaches the intestine, where it can be absorbed, when the drug is given by mouth. A year ago it was considered that the oral route of administration might always remain an impractical one, due to the difficulty just cited. However, it has been shown more recently that satisfactory concentrations of drug in the blood may be obtained if really huge doses of penicillin are taken by mouth. The oral dose necessary for a proper effect must be at least five times as much as an intramuscular dose which gives the same effect. This makes the cost of treatment by the oral method excessive as compared with the intramuscular at the present time. Just now the cost of penicillin for the treatment of a serious infection by the intramuscular route is about one dollar and fifty cents a day. It seems likely that oral dosage with penicillin will replace intramuscular administration in the near future. This would be perfectly feasible if either the cost of the drug is further reduced or if some method of enhancing the absorption of the drug following oral administration is discovered. Up to the present time attempts to achieve the latter by administering the penicillin along with oil, antiacids, and other chemicals have been disappointing. It is interesting to note that penicillin has been administered with good effect in the treatment of lung infections in the form of a vapor which the patient inhales.

As can be imagined, the injection of penicillin deep into the muscles, such as those in the hip region, at intervals of two hours day and night over a period of many days, and often over one of several weeks, becomes very distasteful to the patient. He often objects to being a pincushion early in the course of treatment and almost always does so soon or late as it continues. In order to avoid the nuisance of such frequent injections attempts have been made to prolong the action of single injections. For example, it has been found possible to administer simultaneously with the dose of penicillin another drug which will retard the excretion of penicillin by the kidneys and thus prolong the presence of the drug in the blood for as long as 6 hours after a single dose instead of 2 hours. In like fashion, penicillin has been injected in a mixture of beeswax and peanut oil, which slows the absorption of the penicillin from the site of injection into the blood stream so that effective concentrations of the drug persist for 6 to 7 hours. Methods of prolonging the action of injections of penicillin are still in the experimental

stage and it is not possible to say at present which will prove the most useful.

Penicillin constitutes the treatment of choice for infections due to the streptococcus, the staphylococcus, the pneumococcus, the gonococcus, the gas gangrene bacillus, the anthrax bacillus, and the organisms which cause trench mouth and Vincent's angina. These bacteria are the ones which cause the great bulk of serious infections in humans, such as wound infections, serious skin infections, pneumonia, meningitis, empyema, septicemia, child bed fever, abcesses, and acute infections in the ears, sinuses, and throat. Penicillin is also very effective against the meningococcus, the common cause of meningitis, but it is not clear at present whether penicillin is to be preferred to the sulfonamide drugs in this disease. Penicillin has also been found effective against syphilis, diphtheria, a serious type of fungus infection called actinomycosis, and rat bite fever, but its value in these conditions requires further evaluation. For example, penicillin appears to give a rapid and complete cure of syphilis in its early stages, but it is not certain as yet whether such a cure is permanent as it is with the older methods of treatment with arsenic and bismuth. Penicillin is not effective against certain infections due to bacilli which are readily cured with the sulfonamide drugs. These infections would include those due to the colon bacillus, the commonest invaders of the urinary tract, bacilli which cause common types of dysentery, the influenza bacillus, and the bacillus which causes chancroid. Like the sulfonamide drugs, penicillin has no value against typhoid fever, tuberculosis, undulant fever, or any of the diseases due to viruses such as measles, infantile paralysis, the common cold, and grippe, and no value in any disease which is not due to infection.

As yet the mode of action of penicillin, the manner in which it cures infections, is not entirely clear. It seems likely, as is the case with the sulfonamide drugs, that penicillin interferes in some way with the essential life processes of the bacterial cell. Penicillin acts against bacteria much more rapidly than do the sulfonamide drugs, suggesting that it may actually kill the germs rather than merely stopping them from multiplying as the sulfonamides do. However, this point is still somewhat obscure.

When penicillin was first being used it was hoped that it would prove entirely free of any undesirable side actions such as the toxic effects which constitute a nuisance in the use of the sulfonamide drugs. It is already apparent that this hope will not be wholly justified. As yet no frequent or really serious toxic effects from penicillin have been observed, but it is quite apparent that the drug occasionally causes fever, hives, skin rashes, joint pains, and possibly neuritis. However, the common toxic reactions which follow the sulfonamides, and which made it necessary for patients receiving them to have frequent examinations of the blood and urine and other laboratory tests, have not been observed.

In summary, we may state that penicillin has proved an equally effective treatment for most of the infections which are susceptible to sulfonamide treatment with the advantages that it lacks the serious toxic effects of the sulfonamides, and that it is effective against a number of serious, common infections against which the sulfonamides have little or no effect. This additional value of penicillin is most notable in the instance of staphylococcus infections, such as osteomyelitis with blood stream infection, and in that of bacterial endocarditis. This deadly infection of the heart valves was formerly universally fatal. With the sulfonamide drugs perhaps 10 per cent of patients with bacterial endocarditis were saved but with penicillin the recovery rate is at least 50 per cent and possibly as much as 75 per cent.

Streptomycin.—One of the most interesting antibiotics discovered so far is *streptomycin,* an extract from a mold prevalent in soil, streptomyces. This substance has been found highly effective in the test tube against a variety of infections which are completely resistant to treatment with either penicillin or sulfonamide drugs, and which include the typhoid bacillus, the tuberculosis bacillus, and the bacillus which causes tularemia. Streptomycin has already been shown to have value in the treatment of such infections in animals and it is hoped that similar effects will be observed in human infections. Trial of streptomycin in human diseases is now under way. Unfortunately the results of such treatment are not available in any quantity at the time of this writing.

Infectious Jaundice.—A fairly common illness familiar to many by reason of personal experience consists of vague abdominal discomforts, loss of appetite, nausea, a sense of fatigue, and jaundice, or yellow discoloration of the skin and the whites of the eyes. This illness, which commonly persists for a few weeks, following which complete recovery occurs, has long been known as "catarrhal jaundice." This name was given to the disease because physicians have for generations considered that this condition is due to a catarrh of the bile ducts which obstructs the drainage of bile from the liver just as a cold in the nose results in obstruction of drainage from that organ. For years it has been recognized that epidemics of this type of jaundice might occur, particularly during wartime conditions of crowding. During the Second World War such epidemics of jaundice occurred in large numbers, affording an opportunity for study which has given us an entirely new body of knowledge concerning this disease. It has been discovered that this type of jaundice is due to infection with a filterable virus which causes a generalized inflammation of the liver. Experiments on human volunteers have shown that the disease may be contracted by the ingestion of food, water, or other substances which have been contaminated with the excreta of a person suffering from the infection, which thus appears to be spread in much the same fashion as typhoid fever. There is also proof that the disease may be contracted by inoculation with blood serum obtained from an individual suffering with the infection. The most notable epidemic of jaundice in history occurred in the early days of the Second World War, affecting military personnel. More than 11,000 cases appeared among troops stationed in the western region of the United States alone. It was quickly noted that all the men affected by the jaundice had been vaccinated with certain lots of yellow fever vaccine. This vaccine had been made with human serum, and it is now understood that some of this serum was unknowingly derived from individuals who had the causative virus of infectious hepatitis in their blood. As might be expected, when yellow fever vaccine prepared with this infected serum was administered on a large scale, thousands of cases of jaundice resulted. In this instance an even worse epidemic was prevented only by the prompt and intelligent action taken through the Office of the Surgeon General of the Army which quickly

solved the problem and terminated the difficulty. At present yellow fever vaccine is prepared without the use of any serum from human beings and individuals may be vaccinated without any danger at all.

Carefully controlled studies of the treatment of infectious jaundice have shown that two things are of paramount importance. These are rest in bed and the consumption of liberal amounts of food including fat, protein, and starches. All the medicines tried, including intensive vitamin therapy, have proved disappointing. With rest and a liberal diet practically all cases of infectious jaundice recover completely. In less than one half of 1 per cent the disease is fatal, and of those who survive, less than 5 per cent show any permanent damage to the liver.

Control of Airborne Infection.—Recent years have brought important advances in our knowledge of how to control the spread of diseases which are disseminated through the air we breathe. It has been known for a long time that many respiratory infections, such as streptococcal sore throats and influenza, the common cold, measles, whooping cough, and pneumonia are contracted by inhaling air which contains tiny droplets of saliva expelled by the breathing, coughing, or sneezing of an infected individual. It has usually been considered that this type of infection occurred only when the contagious individual coughed or sneezed in close proximity to his victim. Recent studies have shown that this need not be the case at all, and that the air in the vicinity of a contagious individual is not only contaminated for a considerable distance, but also remains contaminated for some time after the individual has left the immediate vicinity. This latter phenomenon has been explained by the demonstration that bedclothes, floor dust, and other materials may become impregnated with bacteria or viruses by an ill person, and function as a reservoir from which infectious material blows into the air, where it may be inhaled and reproduce infection. In a study made in an army barracks it was found that each cubic foot of air contained 15 to 20 of a virulent type of streptococcus, and that 100,000 of the same organism could be found on a single sheet or blanket. Moreover, it was observed that the frequency of illnesses due to streptococci was proportional to the number of the bacteria in the air.

Such facts might be horrifying were it not that remedies for them have already been found. The regular use of oil on the floor, which prevents the dispersal of dust, and the treatment of bedclothes with an emulsion which reduces the dispersal of dust and lint, practically obliterates the danger of contamination of the air from such reservoirs of infection. Furthermore, it has been found that air containing germs may be very effectively sterilized in one of several ways. This may be done by the use of ultraviolet lights, or by impregnating the air with a germicidal gas which is harmless to humans. A vapor made from the chemical triethylene glycol has been found very useful for this purpose. It seems unlikely that measures such as those outlined above for the control of airborne infection will ever be necessary or practicable in the home. On the contrary it is considered that they may find a wide use in environments such as schools, theaters, and hospital wards where the herding together of individuals exposes the entire group to infection with some illness existing in a single member. It has already been proved that the use of ultra violet irradiation of air in a school prevented the epidemic spread of contagion in one department of the school although it occurred freely in the other departments where no attempts at prevention were made.

Human Blood Fractionation.—The global war caused an enormous demand for human blood and blood substitutes to combat the hemorrhage and shock which so regularly result from war wounds. Early in the course of the war it became obvious that human blood in its natural state, as ordinarily used for blood transfusions, was unsuitable for use in military medicine. This was because it could not be accumulated and stored in advance, since it does not keep well for extended periods of time, and also because before every ordinary blood transfusion, the bloods of donor and recipient must be carefully matched to be sure that they are compatible and that their admixture will not cause a transfusion reaction. This matching is a procedure which requires time and special equipment.

Because of the unsuitability of whole blood, as it is called, blood plasma was tried instead. Blood consists of two components, the red blood corpuscles, and the liquid medium in which they are suspended, which is called blood plasma. The red blood corpuscles are readily separated from the plasma by allowing the whole blood to stand so that the corpuscles may settle to the bottom, following which the overlying plasma may be siphoned off. It was soon discovered that this blood plasma could be dried and a powder obtained which could be stored almost indefinitely, and that when this powder was dissolved in water again at some later date, it could be administered to patients suffering from shock with most of the beneficial effects of whole blood. As everyone knows, under the auspices of the Red Cross, the civilian population donated millions of pints of blood, from which dried plasma was prepared for the treatment of our wounded abroad. It was used for this purpose on an enormous scale, and this treatment is credited with saving thousands of lives.

Of these two primary blood fractions it is not only the plasma which is useful, for experience has shown that the red blood corpuscles which are separated from the plasma may also be used to advantage. They also can be stored for future use, although not for as long periods as the plasma, and then can be resuspended in a saline solution and injected into the veins as an effective treatment for serious anemia, just as whole blood is used for this purpose. In this connection it may be mentioned that it is the plasma fraction of blood which is effective in the treatment of shock and the corpuscle fraction which is so in the treatment of anemia. This explains why the two fractions may be used separately in the treatment of the two conditions. Naturally, whole blood is effective in the treatment of either.

Still further advances have been made in the fractionation of blood. The most important constituent of plasma is blood, or plasma, protein, which is present in two principal forms, albumin and globulin. It has long been known that the plasma albumin is formed in the liver, but it has only recently been discovered that the plasma globulin is formed in the lymph gland tissue of the body. Recent studies have demonstrated that the albumin fraction may be extracted in pure form from plasma, and that relatively small amounts of this substance, such as may be contained in a small pocket-sized vial, are effective in the treatment of shock much as are either whole blood or plasma. In this fashion the treat-

ment of shock has been made even more simple and convenient than with plasma. This plasma albumin has also been found helpful in the treatment of a number of diseases, particularly severe malnutrition, which is characterized by a pathological deficiency of the albumin in the blood, which results in serious dropsy.

The globulin fraction of the plasma protein has also proved of great interest and value, for it has been found that this substance contains the antibodies of the blood. These are an important part of the mechanism by which we resist disease and acquire immunity to it. The globulin fraction also has been isolated in pure from and it has already been proved that inoculation with some of this material will cause immunity to measles in a high percentage of cases, constituting the safest and most effective agent for this purpose that we know of today.

In addition to the albumin and globulin fractions of the plasma proteins, still other fractions exist in much smaller quantity. Of these fibrin and thrombin, both of which are important in the mechanism of the clotting of blood, have also been extracted in pure form. They have already been employed successfully as a treatment to check hemorrhage. Their value is already proved in at least two conditions where we have long lacked an effective agent for the purpose of checking bleeding. These two conditions are the oozing of blood which occurs during operations on the brain, and the serious bleeding which often persists at the site of accidental injury or surgical operation in individuals who suffer from hemophilia, a hereditary disease characterized by an abnormal bleeding tendency.

It seems probable that the blood plasma contains still other fractions which will be isolated and prove useful in the treatment of disease. Much interest is focused on this field of research, and much is hoped from it.

DDT.—In the AMERICANA ANNUAL for 1944 preliminary mention was made of the remarkable new insecticide DDT, the chemical composition of which was a military secret at the time of writing. It may now be revealed that this substance is dichloro-diphenyl-dichloroethane, a chemical which was first synthesized in 1874 in Strasbourg. It was first used as an insecticide in Switzerland, for the purpose of destroying agricultural pests, and it was called to the attention of the military services by the United States Department of Agriculture early in the global war when it became apparent that the control of insect-born diseases, such as malaria and typhus fever, would be major military problems. Tests made with a variety of insects showed that DDT would kill them effectively either by being eaten or by merely coming into contact with it. The substance was put into military service and achieved a brilliant success. It has been found that DDT is marvelously effective against flies, mosquitoes, lice, bed bugs, cockroaches, ticks, chiggers and a host of other insects not directly concerned in the transmission of disease. Accordingly this agent has already become a factor of paramount importance in the control of insect-borne diseases, especially typhus fever and malaria. Moreover DDT has been proved harmless to humans and to domestic animals when properly employed. One of the most remarkable features of this substance is the duration of its action. For example, clothing dusted with it will remain immune to infestation with lice for a month, and this power to repell the lice will persist through several washings. DDT is effective when used as a dusting powder, and it may be dissolved in kerosene for a spray, or mixed with other liquids and used as a paint. For adequate effect, insecticide mixtures must contain at least 3 to 5 per cent of DDT.

Congenital Anomalies Following German Measles.—In 1940, an unusually severe form of German measles became epidemic in Australia, probably as the result of wartime conditions of crowding and poor hygiene. Some months later it was noted that an unusual number of babies were being born with congenital defects, particularly cataracts in the eyes and cardiac conditions. It was soon discovered that these infants came from mothers who had had German measles in the early months of their pregnancies. Closer examination of the data revealed that almost 100 per cent of the mothers who had had German measles during the first two months of pregnancy gave birth to defective children, the percentage declining as the measles occurred later in pregnancy. Within the past year the same sequence of events has been recognized in this country, also in conjunction with unusually severe epidemics of German measles probably resulting from wartime conditions. Since German measles is a very common ailment, one might well inquire why the association of congenital defects with it has never been noted previously. There seem several possible explanations for this. One might be that in normal times most females do not suffer from German measles during the childbearing period, since the disease is essentially one of childhood. Thus, normally, cases of the disease affecting a pregnant woman are so scattered and sporadic that the association of congenital defects in the offspring might well escape notice, while on the other hand in wartime the occurrence of large epidemics involving pregnant women, as well as others, provided large numbers of cases in such a short time that the phenomenon became obvious. Another possible explanation might be that the disease in question is not German measles at all, but rather some new disease which has not yet been distinguished from German measles, or that it might be German measles which has acquired exceptional virulence, as sometimes happens with infectious disease when they are passed through unusually large numbers of people. Whatever the explanation, one may well inquire how this new hazard to the unborn child is to be met. Obviously it is necessary that the pregnant woman take every precaution against being exposed to German measles. It has also been suggested that all females be deliberately infected with the disease in childhood so that having had it, they will be immune in later life when they bear children. This might be quite feasible, since the disease is a mild one from which people very rarely, if ever, become seriously ill.

Successful Vaccination Against Influenza.—Within the past year it has been announced that it is now possible to vaccinate individuals successfully against influenza with a vaccine prepared by growing the virus within eggs containing living chick embryos. This vaccination confers an immunity to the disease which is highest during the second week after vaccination, when 85 per cent of the vaccinated individuals appear immune, and which persists with considerable effect for at least six weeks. It is considered that the wholesale application of this vaccination to the population would probably cut short the spread of influenza if we should again be faced with the danger of a terrible epidemic such as oc-

curred after the First World War. At present it does not seem worthwhile to vaccinate individuals on general principles since influenza is a mild disease in normal times and becomes a serious one only in its epidemic form.

Malaria.—The recent deployment of millions of military personnel in Africa, the South Pacific, and other tropical and subtropical regions where malaria is prevalent caused this disease to be one of the major medical problems of the war and provided the greatest opportunity in history for study and elucidation of the disease. In view of this fact it is somewhat disappointing that many of the most important problems relating to it remain unsolved. For instance, no treatment has yet been discovered which will prevent relapses in the common variety of malaria. However, certain important discoveries have been made, and deserve mention here.

It is now proved fairly conclusively that when a victim is bitten by a mosquito infected with malaria, the malarial parasite lodges in the tissues of the individual and grows there for a time before it invades the blood and causes the symptoms of malaria. This explains the incubation period between being bitten by a mosquito and the development of the fever which signifies the disease and which results from huge numbers of the parasites in the blood stream. The fact that the malarial parasite lodges in the tissues also explains the tendency to relapse in malaria, since it has been shown that some parasites may persist in the tissues, and later reinfect the blood even after all the parasites in the blood have been killed by treatment.

Recent experience of the military forces with the treatment of malaria has caused a revision of our notions concerning the relative merits of the drugs effective in treatment. Atabrine, also called quinacrine, a synthetic drug long considered a poor substitute for quinine, has proved to be the most effective drug for the treatment of all three of the common varieties of malaria, and is now preferred to quinine in all instances, not only for treatment but also for prevention of infection.

Plasmochin, another synthetic drug, previously thought to have value for the prevention of relapses in malaria, has proved to have no value in this respect, but has demonstrated an unsuspected value for another purpose. When given to persons suffering from one variety of malaria, the malignant tertian type, it supresses the parasites in their blood so that mosquitos biting these individuals are not contaminated with the disease. In this fashion, plasmochin is useful in preventing the spread of this type of malaria from person to person by mosquitos. It is now recognized that neither atabrine nor quinine is effective in preventing relapses of malarial fever, and that natural, and perhaps acquired, immunity is a more important factor in governing an individual's tendency to relapse than had hitherto been suspected. As yet, no drug has been found that will cure the disease and guarantee that no relapse will occur. The discovery of such a drug will constitute one of the great medical discoveries of all time, since it is estimated that even in peacetime more people, the world over, suffer from malaria than from any other type of serious infection.

Infantile Paralysis.—The past few years have brought important additions to our knowledge of the disease infantile paralysis, or poliomyelitis. It has been known for a good many years that this illness is caused by a virus, but the manner in which individuals became infected and in which the disease spreads has only recently been discovered. It has been proved that infection may result when the causative virus enters the mouth and passes down the gastro-intestinal tract, and it has even been possible to isolate the virus from the stools of patients suffering from the disease. Moreover, it has been shown that the virus may be found in the stools of apparently healthy individuals who have merely been in contact with a person suffering from the disease, indicating that such individuals, who have not yet developed the disease themselves, none the less constitute a source of infection for the public. The virus has also been found in sewage, on flies, and in food which has been exposed to flies. It is thus apparent that the disease may be spread not only directly from person to person but also by flies through the medium of food, and possibly other things, which they contaminate. These findings give good hope that in the future epidemics of poliomyelitis may be prevented, or at least cut short by measures directed toward the control of flies and the avoidance of food which has not been thoroughly washed or cooked. These discoveries also explain the occurrence of epidemics of the disease in warm weather only, a phenomenon which had long been puzzling, since this is the time when flies are most prevalent.

Scrub Typhus Fever.—Early in the course of our military operations in the Southwest Pacific during the recent global conflict it became apparent that one of the serious medical problems in that theater of operations would be a serious infection to which the name scrub typhus fever has been given. As soon as this problem became evident, extensive studies were initiated by the Medical Department of the army, and these have resulted in an entirely new body of knowledge concerning a disease which previously had been merely a medical curiosity. Since the latter years of the last century it has been known that there occurred in certain river valleys in Japan and adjacent regions of Formosa a type of fever to which the name Tsutsugamushi disease was given, and that this disease was caused by a bacterial organism called *Rickettsia orientalis*, a variety of the same organism which causes typhus fever, one of the scourges of eastern Europe. Until recently it had never been understood that this disease was also prevalent in many parts of southeast Asia and the adjacent islands of the Indian Ocean, and in the Southwest Pacific islands. This has unfortunately been proved by the experience of our troops in these areas.

The disease which afflicted them is characterized by onset with fever, and general misery followed by the development of a skin rash, and, in severe cases, by evidences of brain infection, heart failure, and involvement of the liver and kidneys. The mortality of the disease ranges as high as 30 per cent in the more severe epidemics. One very characteristic feature of the disease is a sore, or scar, at the site where the infection gained admittance to the body. It has been proved that this infection always occurs as the consequence of being bitten by an insect, a mite. This mite habitually lives on the bodies of small rodents, and from them becomes attached to grass and other foliage through which these small animals pass. Thus it follows that infection with the disease commonly results from working in, or passing through, grassy and bushy areas, or areas covered with scrubby foliage. It is from this fact that the name "scrub typhus" derives. Up to the present time, no treatment has been discovered which is proved effective for the disease. A serum

and two chemicals, methylene blue and para-amino-benzoic acid, have been tried with some apparent success, but all of these require further evaluation.

This disease, scrub typhus, provides an excellent example of the manner in which the medical departments of our armed forces have solved a great variety of problems. In this instance our soldiers became ill in large numbers from a disease which had never been considered a problem in the areas where they were engaged. As soon as the problem became evident, a commission of research workers began work on it, and they speedily identified the disease with one previously considered to be of importance only in Japan, ascertained the causative organism, proved the mode of transmission via an insect, established the characteristic symptoms and signs of the illness, and initiated the trial of new methods of treatment. Accordingly, this disease is discussed here not only because much that is new has been learned about it, but also because it serves to illustrate the solution of a medical problem by the modern method of combined attack by bacteriologists, epidemiologists, and physicians at the bedside. See also OPHTHALMOLOGY; PUBLIC HEALTH SERVICE, U.S.; REHABILITATION; SURGERY, PROGRESS IN.

CHARLES H. WHEELER,
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MELLON INSTITUTE. This institute commemorated in 1945 the 35th anniversary of the application of its methods at the University of Pittsburgh. Since 1911 the institute has pioneered paths for developing technology and public health through nonprofit scientific investigation. It has been active in cultivating the natural sciences, in improving chemical education and research, in building up chemical engineering and industrial hygiene. During the past four years it has been serving the federal government by much work of martial necessity.

Advances in Coal Chemistry.—Research veterans are investigating problems concerning bituminous coal derivatives, including the recovery of compounds from coke-oven gas, the elimination of wastes, the improvement of quality of products, and the industrial uses of these chemicals. A study of the impurities in "nitration benzene," the most important commercial grade, has been carried out. A speedy and accurate method has been composed for determining hydrocyanic acid and certain of its derivatives in gaseous, liquid, or solid state. A project attracting much effort is the recovery of thiocyanates from solutions. A new process for making guanidine nitrate has been announced.

Work on the physical constants of tar bases has laid out a map of the entire field and of the extensions that may be expected. Investigations on the rheological properties of various tar products have been continued. An important outcome has been the manufacture and introduction of a pitch compound of modified flow characteristics, suitable for the protection of metal products, such as corrugated roofing and siding, flat and V-crimp sheets, and associated constructional accessories. Other types of modified pitches that may be of interest in the development of more chemically resistant mastics are being evaluated in experimental installations. The desulphurization of naphthalene is also receiving developmental attention. A method has been contrived for determining small amounts of sulphur in naphthalene. Studies are under way on the oxidation of ethylnaphthalene. A new procedure has been found for making vinylnaphthalene, which has promise in plastics technology. Cyclopentadiene, one of the recently investigated coal chemicals, is now recovered by a number of coke plants for use in the production of synthetic resins. A novel approach to the separation of the constituents of anthracene cake has been the guide to a process of manufacturing a new product. Improvements have been made in the preparation of vinylcarbazole. Progress has been accomplished in the synthesis of picolines and of vinyl derivatives of pyridine and in research on the oxidation of lutidines and picolines.

Progress in Plastics Technology.—The institute's specialists in plastics have kept on increasing their investigational acquisitions. A pilot plant for making bentonite plastics is in operation as an adjunct to the laboratory work. Service tests have demonstrated the utility of new coriaceous plastics in several essential industries. Preformed plastic, developed in a 5-year joint program, is produced from a mixture of 99 per cent water and 1 per cent wood fibers and a phenolic resin, beaten together and then strained by vacuum through a screen to preform to the desired shape, as an airplane wing tip. The wet preform is next oven-dried and molded under heat and pressure. The density can be varied from that of a suberose substance to a strong material resembling hardwood. Research is continuing on organic plastics containing sulphur. Much work has to do with processing and utilizing plastics. Precision casting, molding-laminating techniques, and drying are being investigated. Fibrous reinforcing fillers for molding mixtures are receiving study. Other projects relate to new plasticizers.

New Organosilicon Products.—An offspring of inorganic and organic chemistry in combination, the research on organosilicon derivatives has covered much ground excellently in both theory and practice.

The technical glassware fellowship was founded in 1931 for the development of certain types of glass composition. Later the problem of coating glass blocks with a cement-adherent material, assigned to the fellowship, was successfully solved; the patented process is now in industrial use. The fellowship was then asked to carry on research on the synthesis of organosilicon compounds intended as impregnants for electrical glass tape. This investigation, in a new field of chemistry, brought unexpected and useful findings. A series of organosilicon oxide fluids or liquid polysiloxanes was synthesized and proved to be the basis for other diversified preparations. Resinous compounds of utility in impregnating and molding were also discovered.

Fluids are now being made that have high heat stability and low freezing points, with exceedingly small slope to the temperature-viscosity curve. Greases have been developed that retain a petrolatum-like consistency between —40° F. and 400° F.; they have found uses as lubricants or electrical sealing compounds where corrosive and high-temperature conditions prevail. Water-repellent compounds that are neutral in reaction are available for application to ceramic insulators and the like. Resins are in production that are natural complements to inorganic spacing materials and have thus given rise to a new class of electrical insulation, unique for its heat-resistance and moisture-proofness. The laminating type of resin employed in conjunction with glass cloth

affords sturdy panels that are electrically non-tracking and nonflammable. Temperature-resistant elastic types of silicones have been under development for several years and some of them are now on the market. Practically all the materials produced were originally completely allocated to war purposes and have helped in the solution of problems presented by the armed forces. This laudable co-operative program has built a completely new division of chemical products, obtainable in quantities for increasing the potentiality of many industries.

Novel Synthetic Lubricants.—Through the co-operation of the multiple fellowship on special lubricants and the Bureau of Aeronautics, Navy Department, there have been evolved new and improved instrument lubricants of real utility. Processes have been devised and demonstrated for making these novel lubricants on a manufacturing scale.

Synthetic organic chemicals appeared to be the most promising sources for new lubricants with strict properties. Accordingly, several hundred compounds were synthesized and studied extensively, and from the most promising of them 185 blends were prepared. The best compositions determined by laboratory examination were then tested under operating conditions by Naval Air Stations and instrument manufacturers. It was next decided to transfer the procedure for making one of these oils from the laboratory to a unit plant and to introduce such alterations in the processing as became necessary. From this work has come a very satisfactory method that yields a high quality product.

Industrial Hygiene Foundation in the Maintenance of Manpower.—Industrial Hygiene Foundation, a nonprofit national association of industries, which has its headquarters at Mellon Institute, has contributed to the forward health movement in technology through its numerous services and activities for the maintenance of manpower among its member companies and the industrial fields in general. Most important have been plant hygiene investigations to appraise working conditions for their possible effects upon health, and to provide preventive engineering measures to control noxious and obnoxious exposures in work places.

Numerous studies have been made of soldering operations. No significant lead hazard has been found where soldering irons are used, but in some instances torch soldering or lead baths emit dangerous quantities of fume, the latter occurring where the lead is heated excessively. In 1944–45 several chemical dermatitis problems were overcome through the co-ordination of field investigations with experimental studies by ten dermatologists. In other research airborne asbestos dust was studied.

Research chemists of member companies are urged to use every precaution while developing new compounds. If it is thought that a new material will have commercial interest, information on its physiological action is obtained. Where no data are available or if toxicity is suspected, range-finding animal experiments are conducted so as to classify the new substance. Chemical engineers then devise manufacturing processes that have safety as a prime requisite. As far as possible the only difference between the laboratory micro-pilot installation and the later full-scale plant is one of dimensions. In short, precautions are built into the production processes.

In addition to its plant hygiene surveys, the foundation, with the collaboration of the United States Public Health Service, has carried on a program, started in 1940, to help reduce sick absences in the industries. Systematic course of action in industrial hygiene demands concrete knowledge not only of the amount of sick absenteeism, but also of when, where, and why it occurs.

Mellon Institute's Department of Research in Pure Chemistry.—The work of this department has been largely devoted to chemotherapeutic studies, with particular emphasis on the synthesis of new drugs of possible antimalarial activity.

The novel hydroxyethylating agents developed for use with apocupreine have been applied to a variety of new compounds, some of which are possibly useful as therapeutic agents. Substituted lepidylpyridinium and quinolinium bromides and lepidyl mercaptans have been tested as antimalarials. Basically substituted diphenyl ethanolamines and substituted mandelic thioamides have also been prepared as antimalarials.

Of the two synthetic antimalarials that have achieved clinical usage—namely, quinacrine and pamaquine—the latter is representative of the most active chemotherapeutic agents so far discovered for the treatment of malaria. Adoption of pamaquine to any extent in actual medical practice is, however, precluded; the United States Army has advised against its routine use because the margin of safety between therapeutic and toxic doses is too small. This experience has led to the departmental search for modified compounds which will retain high antimalarial activity but will be much less toxic to the host. The possibility of obtaining a much less toxic drug of this type is an additional attraction in that pamaquine has been found to have true prophylactic action at the toxic-dose level. A considerably less toxic analog of sufficient antimalarial activity may therefore prove to be an effectual prophylactic agent against malaria. Here, of course, is the ultimate goal of malaria chemotherapy.

This research on the detoxification of pamaquine has been patterned after the work previously done in this department in detoxifying the antipneumococcic agent "Optochin," work which resulted in the discovery of hydroxyethylapocupreine. A comprehensive plan has in fact been undertaken to synthesize and study hydroxyethyl analogs of the pamaquine series. Several compounds in this class have been made and one substance has shown considerable promise. At present several analogous drugs, which it is hoped will show a corresponding lowering of toxicity together with an enhanced antimalarial activity, are in process of synthesis and testing.

With the assistance of the new alkylating agents, the hydroxyethyl ether derivative of morphine has been prepared, and some of its pharmacological properties have been determined. Introduction of the hydroxyethyl group was again shown to cause a marked lowering of systemic toxicity. In mice, hydroxyethylmorphine was ⅛ as toxic and ⅓ as convulsant as morphine, $\frac{1}{11}$ as toxic and $\frac{1}{17}$ as convulsant as the methyl ether of morphine (codeine), and $\frac{1}{20}$ as toxic and $\frac{1}{22}$ as convulsant as the ethyl ether (dionine). The analgesic power of hydroxyethylmorphine in mice, subjected to a pain stimulus induced by heat, was substantially equivalent to that of codeine and dionine.

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MEMEL. See KLAIPEDA.

MENG CHIANG. A quasi-independent state formed by the Japanese in 1939 from the Chinese provinces comprising Inner Mongolia, and maintained by them until the Japanese surrender in August–September 1945. Meng Chiang had an estimated area of about 200,000 square miles and a population (1939) of between 5,000,000 and 7,000,000 Chinese and Mongols, and in 1937 about 36,000 Japanese civilians, whose numbers are believed to have grown rapidly until the decline of the Japanese empire. Meng Chiang, signifying "lands across the Mongol border," became strategically and politically important in the Japanese imperial scheme as a buffer state between north China and the Mongolian Republic (Outer Mongolia). See also INNER MONGOLIA; MONGOLIA; MONGOLIAN REPUBLIC.

MERCHANT MARINE, United States. See MARITIME COMMISSION, UNITED STATES.

MERCURY. Restrictions on the use of mercury were eased in September 1943 and were withdrawn in February 1944. The data for 1944, as reported by the United States Bureau of Mines, indicates a partial return to consumption for purposes formerly banned by War Production Board Order M-78, the completion of certain aspects of the war program involving mercury, and the opening up of a new phase of war demands. The approximate production of mercury in 1944 was 37,300 flasks (a flask contains 76 pounds) and the approximate consumption amounted to 42,900 flasks. During 1944 there were gains in the use of mercury for agricultural purposes (which includes the use of additional amounts for wood disinfectants and the resumption of quantities for turf fungicides); severe drops in pharmaceutical and other uses; and noteworthy gains in the use for electrical apparatus. The total production for the first six months of 1945 was 17,500 flasks, while consumption for the same period rose to 41,300 flasks. This rise in consumption was due to gains in the manufacture of red mercuric oxide for battery use.

MESOPOTAMIA. See IRAQ.

METALLURGICAL ADVANCES. The year 1945 has been one of transition from wartime to peacetime metallurgy and while a considerable amount of information has come to light concerning processes developed in wartime, the real advantages of these processes to peacetime metallurgy has not been fully determined. From the standpoint of public interest, the metallurgy of uranium has occupied the center of the stage because of its use in the manufacture of the atomic bomb. It appears that the metallic uranium, which was used as the starting point for plutonium production, was made in accordance with well known methods, the actual metal being produced by sodium reduction of the uranium halides.

Plutonium was produced from the uranium metal by bombardment with neutrons emitted by the U-235 present in the uranium and slowed down by traversing suitable thicknesses of graphite. The plutonium formed, being a separate chemical element and not an isotope, was separated from the residual uranium by chemical methods, the exact nature of which has not been made public.

In addition to the basic metallurgy of the process for producing plutonium, the metallurgist was called upon for a great variety of engineering materials, among the most interesting of which were the diffusing barriers for separating the U-235 isotope of uranium from the heavier isotopes. We lack information as to the exact nature of the finally selected barriers of atomic screens, but it appears that a number of alloys such as copper-manganese and nickel-manganese, where one of the constituents is much more readily attacked than the other, can be rolled to thin sheets and screens of atomic dimensions made by suitable chemical treatment.

Finally one of the most interesting features of the whole process for producing the unstable elements which liberate atomic energy is that almost all of the uranium which goes into the process is obtained as a by-product of the process in the form of U-238, which has been substantially freed from both U-235 and plutonium. This provides a real problem for the metallurgist, to find a use for such unexpected quantities of by-product, uranium.

In spite of all of the fanfare about elements Numbers 92, 93 and 94, element Number 26 still remains the backbone of the metallurgical industry. Element 26, of course, is iron.

Iron and Steel in 1945.—Steel making capacity on Jan. 1, 1945 was rated at 95,500,000 tons, an increase of 13,750,000 since 1940. Examination of these figures shows that a greater amount of new iron is being used to produce each ton of steel, than was the case before the war. There has been a substantial increase in the amount of alloy steel made in the open hearth. This has been due, in considerable measure, to increased use of multiple alloy steels such as the national emergency steels adopted during the war. This tendency to use the combined effects of a number of alloys to bring about the desired properties has resulted in the suggestion, which has received some acceptance, of purchasing alloy steels on hardenability specifications. In this procedure the chemical specification covers only the type of alloy steel. The amounts of the several alloying elements, which may be used, is left optional with the steel maker so long as the finished steel meets a definite specification for hardenability. The American Iron and Steel Institute has made up a list of type specifications of these so-called H steels and the hardenability ranges, which can be obtained within the type specifications. In the field of tool steels, it appears that the molybdenum tungsten high speed steel, developed because of the shortage of tungsten, will continue to be used on account of its merits. The addition of cobalt to tungsten high speed steels has increased and enables tools made from these steels to cut material of 300 to 400 Brinell.

There has been an increase in the use of cemented carbides and particularly a recognition of the necessity of heavy supports for carbide tips, which is essential to make use of the high modulus of cemented carbides which may be 80,000,000 compared with 30,000,000 for steel.

Not much that has been developed during the war in the way of changed iron and steel-making practice will be carried over to peacetime. It was found that the aluminum necessary for deoxidizing steel may be reduced by using a borax slag, which dissolves out some of the oxides that would otherwise have to be reduced by aluminum. Aluminum dross has been used as a substitute for fluorspar. The Bureau of Mines has developed a process for agglomerating fine fluorspar to make it acceptable for open hearth use, which should go a long way in solving the fluorspar problem.

There has been continued interest in iron ore preparation, as everyone recognizes that the industry must use an increased amount of bene-

ficiated ore. All beneficiated ore is necessarily too fine for blast furnace use and some form of agglomerating it must be resorted to. The classical methods of nodulizing and sintering are the only ones so far tried on a large scale. Rolling up the slightly wet ore into glomerules and heating to form strong, very porous balls, a process which was developed in the Bureau of Mines' laboratories in 1933, has received increased attention.

Light Metals.—New aluminum alloys of greater hardening range have been announced by both Alcoa and Reynolds. The future of the government-owned aluminum production plants built during the war was still in doubt on November 1. It is improbable that the rate of aluminum production, which was achieved in wartime, will again be required for several years. In the case of magnesium, ingot capacity was expanded 100 fold during the war. Before the war the use of magnesium was largely restricted to castings. While this is still the largest field for magnesium, greatly increased consumption, if it is found, must be found in the wrought alloys which have been used for furniture, truck bodies and almost all of the uses to which aluminum has been put. New alloys such as those with 5 per cent aluminum, 1 per cent zinc and .3 per cent calcium have simplified the production of sheets. An alloy with 8½ per cent aluminum and .5 per cent zinc, provides the highest strength of the wrought alloys in commercial use. When extruded and hardened, it has a strength around 50,000 pounds per square inch. An alloy of magnesium with 4 per cent of manganese and 4 per cent of nickel has been found to have a slightly higher tensile strength and to retain this tensile strength to a remarkable degree at high temperatures. It presents difficulties from corrosion which have not yet been overcome.

Titanium.—Titanium has been receiving increased attention as an addition to steel for neutralizing carbon, as a constituent of high temperature alloys for gas turbines, as a constituent of rolled zinc alloys and alloys to make glass to metal seals and finally as a ductile light metal with unusual physical properties. The Foote Mineral Company has produced titanium by the De Boer process of decomposing titanium iodide on fine incandescent wires. The Bureau of Mines has used the Kroll process of reducing titanium tetrachloride with magnesium and sintering the product so obtained in vacuum. The product of both of these methods is highly ductile, corrosion resistant and suitable for any type of fabrication. See also CHEMISTRY; MINES, UNITED STATES BUREAU OF.

R. S. DEAN,
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METEOROLOGICAL SOCIETY, American. Founded in 1919 through the initiative of Dr. Charles F. Brooks, then of the United States Weather Bureau, the society, starting with less than 600 members and a budget of less than $2,000, in 1945 had a membership of more than 2,700 and an annual budget of around $35,000. The members meet in regional and national gatherings in different cities at various times of the year. There are some 20 or 30 local branches which meet at regular intervals. While anyone interested in meteorology may become a member of the society, in 1944 there was established a separate class of professional members. The society is active not only in promoting developments of meteorological theory, but also in the practical and personal affairs of the profession, as, for instance, in the placement of returning veterans, who have had meteorological experience. Since 1920 the society has published 10 times a year its *Bulletin*, which brings to its members news of the latest developments in weather science and organization. In 1944 it began publication of a quarterly *Journal of Meteorology*, devoted to the presentation of important research. The society maintains a book service, and publishes a classified list of publications, with summaries. President, Prof. C. G. Rossby, University of Chicago; secretary, Prof. Charles F. Brooks, Harvard University.

METEOROLOGY. The cessation of hostilities has led to the release to the public of considerable information on wartime developments in weather service and in instrumental aids for navigation in bad weather. Some of this publicity gives the impression that great advances in forecasting have been made and that new navigation aids will render weather forecasts less necessary.

However, the results of war research and experience are really most striking for the wholesale application of certain techniques known or suggested, but little used before the war. During the war, areas of the world and expenditures of men and equipment were involved to an extent meteorologists used to hope for and dream about, but never believed possible in this generation. In this way we have learned a lot about the value in other parts of the world of ideas, instruments, and techniques which previously had been tried, if at all, only on a limited scale and in restricted regions. Also, we have found out some of the peculiar problems that must yet be solved in order to provide adequate weather service in remote regions, where civilian aviation may wish to go in peacetime, or the military in a future war. The immediate importance of such intelligence should not be underestimated, nor eclipsed by the glowing promises for the future of certain new developments that just began during the war. The scope of wartime meteorological experience could not be fairly indicated in anything less than a book, but it will suffice to mention several items:

(1) Millions of daily surface and upper-air weather observations were taken by the Allied armies and navies at hundreds of stations scattered over more than half the globe, in regions where such observations were very scanty, inaccurate, incomplete or nonexistent heretofore. These data are being preserved in convenient form for meteorologists to analyze. The civilian weather services will take over as many of the military weather stations as they can in order to continue the worldwide network necessary for international civil aviation.

(2) Much of the vast amount of meteorological equipment of the army becomes excess and is being turned over to civilian services and other governments to use for the benefit of all weather services.

(3) Most of the large number of men trained in meterology for and by the army and navy will return to civil life and their experience will thus become available to the airlines, Weather Bureau, universities and industry. The American Meteorological Society is actively endeavoring to obtain or create opportunities for these men where their weather experience in the war can be applied to good advantage.

(4) The preparation of background materials for use of forecasters was carried out on a much more extensive scale by the military services than ever done before. In particular, sets of historical

(past) daily and average weather maps (both sea level and upper air) were compiled and published. One of these sets is said to have repaid its great cost many times over by the aid it gave in making the forecast for D-day in Europe. These maps and other voluminous tabulations made for military planning will become available to the public and may be of as great value in peace as in war. The need for such materials has long been recognized and only prohibitive cost prevented their earlier preparation.

Probably not all the new developments from the war years have been made fully public as yet. Already the imagination of the public is fired particularly by the uses of radar, among which the application to storm detection is prominent. Undoubtedly, from the professional point of view too, this is the single most promising recent meteorological development. The Civil Aeronautics Administration (CAA), airlines, and Weather Bureau are now taking a hand in this work and much will be heard about it in the next few years. Radar installations in planes and on the ground will detect fog, clouds and rain, for miles around, indicate their thickness and intensity, etc., permit airplanes to steer a safe path through them to destinations or landings, and to avoid hitting other planes and mountains. But it does not necessarily follow that, as a result of radar, weather reports and forecasts may no longer be much needed for aviation, for many aviators will not plan to fly if dangerous weather is accurately forecast. Moreover, the radar weather reports will amplify the detail in weather observations to an extent that better forecasts will be possible. Another valuable use of radar is in providing wind observations from planes flying over the sea. The radar gives the absolute height of the plane. By comparing at two successive times this measure with the indicated altimeter height, the navigator can compute the true wind direction and speed even when the sea or sky is invisible. This information can be radioed back to help the weather forecasters and also used by the navigator to revise his flight plan. The tracking of balloons for upper-wind measurements is now often accomplished by radar, permitting observations to great heights regardless of weather (clouds).

The army and navy have pioneered and developed the use of "weather reconnaissance" by aircraft to obtain current weather data from remote areas, especially the oceans, needed for forecasting for critical regions. Radar methods described above have been a basic adjunct in weather reconnaissance. We may expect the civil weather services to adopt such aircraft reconnaissance, especially of hurricanes.

Finally, we may mention the recently increasing use of punched-card machine methods for tabulating weather reports for climatological and weather research studies. The army now has millions of cards punched with weather data, and the Weather Bureau as well as foreign weather services are also taking up this powerful and efficient method on a large scale.

The letdown of wartime restrictions did not come in time to be greatly reflected in the meteorological publications during 1945. However, a few noteworthy textbooks and papers appeared: *General Meteorology*, by H. R. Byers; *Dynamic Meteorology*, by Holmboe, Forsythe and Gustin; *Use of Pressure Altitude and Altimeter Corrections in Meteorology*, by J. C. Bellamy; and *Handbook of Meteorology*, edited by Berry, Bollay and Beers.

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American Meteorological Society.

METHODIST CHURCH. The Crusade for Christ, which was planned by the General Conference of 1944, has been pressed vigorously. The first objective, an emergency fund for relief and restoration, has been achieved by subscriptions of $27,577,815 of which $21,380,194 had been paid before Nov. 23, 1945. Some progress has been made toward the increase of Sunday school attendance, which has suffered heavy declines in recent years. Evangelism is now being pressed, both in reviving the interest of the million members classed as "inactive", and through a New Life Movement, headed by Rev. Albert E. Day of California, which will arrange for evangelistic campaigns throughout the country. The upturn in prosperity, due largely to the war, is reflected in reports of all the administrative bodies. The Board of Publication had record sales of $8,315,232. From the net produce, $400,000 was appropriated for distribution among the retired ministers. The total number of Sunday school helps and story papers rose to 89,000,000 copies. A new headquarters building will be erected in Nashville, Tenn., a new building bought in Kansas City, and $500,000 will be spent on presses and other equipment. It is planned to offer scholarships in schools of journalism for young people who wish to prepare themselves for work in the Publishing House.

Bishop Badley of India, Bishop Gattinoni of South America, and Bishop Springer of Africa, have retired. The Rev. Arthur F. Wesley was elected for South America, and the Rev. John A. Subhan for India. The latter is the first Mohammedan convert to be elected a Methodist bishop. War conditions prevented the Central Conferences in Germany and China from meeting. Bishop Ralph Ward of China has been liberated after internment by the Japanese. Bishop Edwin F. Lee, of Southwestern Asia, who escaped from Singapore, has revisited his field. Bishop Melle of Germany survived the Battle of Berlin, and has resumed his activities. He reports havoc among the Methodist church properties in the Reich.

The Methodist Committee on Overseas Relief reports receipts for the fiscal year ended May 31, 1945 of $673,296. For China Relief this body has disbursed $216,619; and through other agencies, Methodist and interdenominational, about $460,000. The Crusade for Christ presented $25,000 for child relief in Greece through Archbishop Damaskinos, regent of the kingdom. Methodist offerings for World Service (benevolences) totaled $5,803,049, not including special gifts of $678,336, and over $4,000,000 raised by the Women's Society of Christian Service.

The statistics of membership, etc., show full membership 8,046,129, of whom 1,318,258 are classed as "inactive." The enrolment in the 20,826 church Sunday schools was 4,898,096. The number of preaching places was 41,067; value of churches and parsonages $602,398,329, on which the indebtedness was $25,587,960. Debts had been reduced by $12,197,000 in the year. Local church expenditures amounted to $87,173,254. There were 18,269 effective ministers, and 5,385 on the retired list. Supply pastors, mostly local preachers, numbered 3,759. There were 21,104 pastoral charges, and 41,067 preaching places. The Woman's Society of Christian Service (a union of the former missionary societies, Home and Foreign) has 30,283 local units and 1,161,389 members.

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METROPOLITAN MUSEUM OF ART, The. Plans for large-scale additions and alterations to the museum's building, located in New York City, were announced at the annual meeting in January, 1945. The proposed changes will cost several million dollars and will make possible a more attractive and legible arrangement of the museum's vast collections, besides providing special space for The Whitney Museum of American Art and for a new auditorium, better library stack arrangement and other improvements.

Under the new scheme the museum will be divided into five museums to function under one roof: the Museum of Ancient Art, devoted to the civilizations of the Mediterranean basin, Egypt, the Near East, Greece and Rome; the Museum of Oriental Art, covering the civilizations of Islam and the Far East; the Picture Gallery, which will in turn be connected with the departments of the graphic arts and the print room; the Museum of Decorative Arts, which will cover the systematic evolution of art in Europe from Roman times to the present day, displaying arms and armor, textiles, costumes, glass, ceramics, etc.; a museum to cover the entire development of American art from Colonial times to the present day, to include The Whitney Museum of American Art and the American Wing.

At the annual meeting it was also announced that attendance during 1944 had broken all records and reached over 1,680,000. It continued to increase during 1945.

The museum continued to work out its plan to rearrange collections, to give them attractive settings and make them more easily understandable to the public, as far as possible, in the present building. The first major step in this direction was the reinstallation of paintings on their return from safekeeping in 1944, and the second was the opening of nine rearranged galleries of Greek art in the spring of 1945. These will become a part of the permanent Museum of Ancient Art which will occupy two floors of the south wing and will show in logical sequence the arts of Greece and Italy from the Neolithic period, about 4000 B.C., to the breakup of the Roman Empire in the 4th century A.D. The new installation of Greek art met with critical acclaim.

The more important special exhibitions of 1945 included "William Sidney Mount and His Circle," in which the beginnings of American genre painting were shown; "Costumes from the Forbidden City," a dramatic exhibition of about 200 richly embroidered robes, brilliant in color, set theatrically against backgrounds suggested by the actual Forbidden City of Peking; "American Fashions and Fabrics," in which dresses made of fabrics designed from objects in the museum's collections were shown in a series of fashion promenades and in an exhibition; "Prints and Drawings by Goya"; "The War Against Japan," an exhibition of over 100 paintings and drawings by official artists of the Army, Navy, and Marine Corps, and by *Life* correspondents, sponsored by the Treasury Department.

"The Living Past of China," a special exhibition of museum material designed to go on tour through the city's high schools, was one of many activities in which the museum co-operated with schools of the city. The Junior Museum also geared itself to fit in with specific studies of the grade and junior high schools and put on an exhibition on "Paul Revere," which was attended by about a thousand school children a week during the school year. Classes were also taken by guides to whatever part of the museum applied to their studies, and this was a constant activity. A full schedule of lectures and gallery tours on special exhibitions and on the permanent collections was maintained.

For the second year, the museum's Holiday Shop was opened during the Christmas season and sold vast quantities of Christmas cards taken from paintings and other objects in the collections, special publications, reproductions, casts and other gifts. Museum publications of the year include *The Ch'ing Ming Shang Ho Spring Festival on the River,* a portfolio of 10 details in color from a Chinese scroll painting of the Ming dynasty; *About the Round Table,* by Margaret R. Scherer; *The Great King . . ., King of Assyria,* with photographs by Charles Sheeler, an introductory essay, *The Assyrian Phenomenon,* by Susanna Hare, and *The Palace and Reliefs of Ashurnasirpal II,* by Edith Porada; *Painting in Flanders,* by Roberta M. Fansler and Margaret R. Scherer; *Scenes from the Life of Jesus,* with Quotations from the Bible, arranged by A. T. Gardner (December 1944); *The Slain Soldiers of Neb-Hepet-Re Mentu Hotpe,* a publication of the museum's Egyptian Expedition, by Herbert E. Winlock. The museum also published a large number of inexpensive guides and picture books based on the collections.

An important acquisition of December 1944, is a set of ten Gobelins, tapestries representing months of the year (French, 1732–1737), the gift of John D. Rockefeller, Jr. Acquisitions of 1945 include an enormous ornamental vase of malachite mounted in gilt-bronze (by Thomire of Paris, 1819), purchased from Mrs. Cornelius Vanderbilt and long in the hall of the Vanderbilt house at 640 Fifth Avenue; a painted terracotta portrait bust, probably representing Sir Henry Guildford, by an Italian sculptor working in England in the first quarter of the 16th century; painted boiserie of the boudoir of the Hotel de Crillon in Paris, in the Louis XVI style, probably executed between 1776 and 1782; a collection of more than 160 examples of various types of English pottery of the 17th and 18th centuries, a gift of Mrs. Russell S. Carter; a Flemish tapestry (School of Arras, about 1420) representing the Annunciation, previously in the collection of Mrs. Harold I. Pratt; a marble relief of a youth and horse, Greek, 4th to 3rd century B.C., approximately half life size; a red-figured Athenian amphora showing Perseus and Medusa, about 450–440 B.C.; a black-figured Athenian hydria showing Achilles and Troilus, about 600–550 B.C.; a silver caudle cup made by William Cross, Boston, Mass., late 17th century; a mantle clock made by Aaron Willard, Jr., Boston, Mass., c. 1800, bequest of Herbert Lee Pratt; a chest of drawers, pine with painted decoration, probably Connecticut, c. 1700, the gift of Mrs. J. Insley Blair; a Pennsylvania German walnut and leather settee, c. 1700, gift in memory of Mrs. J. Amory Haskell; a curly maple daybed, New England Queen Anne style, c. 1740, gift of Mr. and Mrs. Paul Moore; sideboard and tambour-front cases for silver, American, probably made in Baltimore, 1795–1800; *The Muse,* a painting of his daughter by Samuel F. B. Morse, the bequest of Herbert Lee Pratt; a group of contemporary American paintings; the Robert Hamilton Rucker collection of Japanese sword furniture, comprising 125 pieces of the finest workmanship by the first fifteen masters of the main Goto family, 16th to 19th centuries.

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MEXICO. A federal republic bounded by the United States on the north, on the west by the Pacific Ocean, on the south by the Pacific, Guatemala, and British Honduras, and on the east by the Gulf of Mexico. The area is 758,258 square miles. The central body of Mexican territory is a vast tableland from 5,000 to 8,000 feet high, ringed by mountain chains which in general parallel the Pacific and Gulf coasts. Many volcanoes are found in central Mexico, most spectacular of which is the new volcano Parícutin which began eruption in February 1943. The Yucatán peninsula, curving northeastward toward Cuba, is a flat, low-lying region. Mexican climate is principally subtropical, except where tempered by altitude. The 1940 census showed a population of 19,653,552; a 1943 estimate was 21,153,321. The capital and largest city is Mexico City (pop. 1,749,916); other important cities are Guadalajara (229,235), Monterrey (186,092), Puebla (138,491), Mérida (98,852), León (86,089), Aguascalientes (82,234), Tampico (81,334), San Luis Potosí (78,042), Torreón (76,613), Veracruz (71,720), and Chihuahua (57,476). Mestizos (mixed bloods) constitute more than half of the total population, Indians 29 per cent, and whites 17 per cent. Immigration at all times has been relatively light; the total foreign population was estimated in 1938 at 500,000; Spaniards constitute the largest group of foreigners. Mexico was conquered by Cortés in 1521 and fabulous sums of gold and silver won for Spain. The ready wealth made Mexico (as the viceroyalty of New Spain), along with Peru, one of the most important parts of the Spanish colonial empire. Independence was finally won from Spain in 1821. The present constitution was promulgated Feb. 5, 1917; it has subsequently been amended frequently. Mexico is divided into 28 states, a federal district, and three territories. The states elect their own governors and legislatures but, to a much greater extent than is true in the United States, are under the political domination of the national government. The president is elected by direct popular vote for a six-year term and is ineligible for reelection. The bicameral congress includes a Senate and a Chamber of Deputies. The former consists of 58 members, two from each state and the federal district; the Chamber of Deputies is chosen on a population basis and now includes 147 members. A permanent committee of 14 senators and 15 deputies represents the congress in the intervals between sessions. The judiciary is headed by a Supreme Court of Justice. The Cabinet contains 11 ministers, headed by a minister of government. The dominant party is the PRM (Partido de la Revolución Mexicana), nomination by which for the presidency is tantamount to election. The president in 1945 is Manuel Ávila Camacho, who assumed office Dec. 1, 1940. Presidential and congressional elections are scheduled for July 7, 1946.

Religion and Education.—Roman Catholicism is the dominant faith, although state and church are entirely separate and have had a long record of recurrent antagonism. The constitution of 1917, as had the preceding constitution of 1857, severely restricted the position of the Catholic Church. Since the election of President Lázaro Cárdenas in 1934 relations between state and church have been more amicable, with further improvement under Ávila. Regulation of the number of priests is a matter for state action. It was alleged in 1945 that certain Catholic circles were reviving anti-Protestant agitation. Archbishop Luis Martínez on May 16 ordered Catholic clergy to abstain from political activity.

Primary education is compulsory and primary and intermediate education free. Literacy was officially estimated to have increased from 41 per cent in 1930 to 48 per cent in 1945. Education statistics show 23,191 primary schools with 2,037,870 pupils, 388 intermediate schools with 64,758 pupils, and 13 universities, most important of which is the National University of Mexico with approximately 10,000 enrolled. A new teacher training institute, authorized by law Dec. 26, 1944, opened March 19, 1945, for the primary purpose of training rural teachers. The most spectacular and significant educational development continued to be the national literacy campaign authorized by law August 21, 1944; three stages were provided: organization, August 1944, through February 1945; teaching, March 1945 through February 1946; and review and appraisal, March-April 1946. The government late in 1944 launched a joint federal-state-private school-construction program.

Communications.—Railway mileage is 12,741, of which the principal lines are the National Railways of Mexico and the Southern Pacific of Mexico. The railways have suffered greatly during the war from lack of equipment and repairs, though Mexico has begun manufacturing some of its own rolling stock. The government announced that 46,433,000 pesos (peso = 20 cents) were spent on repairs and maintenance of national railways in 1944. Highway mileage is 43,711 but less than one-fourth of that is classified as all-weather. The Pan American Highway is being extended toward the Guatemalan border; 109 miles south of Mexico City have now been paved. Airlines now operate a total of 37,593 miles of routes. Nationalization of transportation facilities continued in 1945. Early in the year, the government was negotiating for the purchase of British-owned railways and on January 23, Pan American Airways disposed of its majority control of the Compañía Mexicana de Aviación, as required by Mexican law. A strike by CMA pilots tied up all domestic-run lines for eight days beginning March 5. Mexican and Canadian private interests were negotiating early in 1945 for a new shipping line linking the two countries' Atlantic ports. Vehicle registrations in 1943 included 113,427 automobiles, 11,145 busses, and 53,461 trucks. There are approximately 175,000 telephones with 40,380 miles of line, 43,000 miles of telegraph lines, 750,000 radio receiving sets and 216 broadcasting stations, and 3,682 post offices.

Production.—Mexico is primarily an agricultural country, though only a small fraction of land classified as "agricultural" is actually so used. During the Cárdenas administration much impetus was given the program of land distribution in the form of *ejidos* (communally owned plots) but that program has declined under Ávila Camacho. The latest economic census showed more than 4,000,000 people engaged in agriculture with total annual production valued at about $175,000,000 and with approximately 17,000,000 acres under cultivation; probably an equal acreage could be brought into cultivation if irrigation facilities existed. Corn is the principal crop and the staple food, though production does not ordinarily satisfy domestic needs. Beans are second in importance as a crop and an article of diet. Other crops raised, chiefly for domestic consumption, are wheat, rice, chickpeas, sugar, coffee, fruits, and vegetables. Crops exported in significant amounts include bananas, henequén, coffee,

and winter vegetables. Stock raising is important in many sections and there are about 165,000,000 acres of grazing land. Mexico has about 12,000,000 cattle and 5,000,000 hogs. The 1944 corn crop was estimated at 2,440,483 metric tons as against 1,775,200 tons in 1943 and 2,356,236 tons in 1942. Estimated wheat production for 1943–44 was 396,000 metric tons, a decline of 33,000 tons from the previous year. Wheat consumption in 1944 was estimated at 700,000 to 750,000 tons, the balance over production being imported mostly from the United States. The 1944 cotton crop was estimated at 504,280 bales (about 187,962 bales coming from the Laguna region in north central Mexico); plantings for the 1945 crop were somewhat reduced, especially as the stored surpluses, almost equalling one year's crop, were causing grave concern. Production of winter vegetables was slightly less in 1944 than in 1943. Chickpea production in 1944 was about 74,000 tons. Production of refined sugar in 1943–44 was 390,000 metric tons but consumption was 445,000 tons and was expected to increase in 1945. Henequén production in 1944 was 199,456 tons and that of sesame seed 55,000 tons; shelled peanut production in 1944 was about 57,000 tons. The 1944 rice crop was estimated at 4,600,000 to 5,400,000 bushels as against 5,682,000 in 1943; a government decree Nov. 22, 1944, put production of rice for 1944–45 under strict government control. Crop estimates for 1945 were generally lacking, although the sugar crop was estimated at 409,000 short tons. The livestock industry had a generally poor year in 1944; the fishing industry expanded, however. Mexico's chief forest products are chicle, vegetable waxes, and woods. Lumbering operations were down in 1944 due to lack of logging equipment, but mahogany production totalled about 25,000,000 board feet. Production of metals and minerals was about 20 per cent less in 1944 than in 1943, due largely to tapered United States demands. Crude petroleum production in 1944 was 36,120,000 barrels, a considerable decline from previous years. Petroleum reserves were officially estimated Jan. 1, 1945, to be 800,000,000 barrels, though private estimates put the amount at 660,000,000 barrels. Iron production in 1944 was 186,960,771 kilograms as against 137,936,273 kilos in 1943. The United States by the beginning of 1945 had stopped its purchases of celestite, mercury, and tungsten. Government stimulation of both agriculture and mining continued in 1944 and early 1945. Students entering the national college of agriculture are now required to pledge three years of professional service after graduation. The government early in 1945 began opening machinery centers. It also announced that in the first three years of the Ávila administration 928 presidential proclamations had granted 2,800,000 acres to 17,304 *campesinos* (peasant farmers). The government early in 1945 began encouraging greater national use of native minerals such as iron, lead, zinc, copper, antimony, mercury, silver, and coal; Mexico normally produces about two-fifths of the world's silver. Mexico's industrial production is limited but growing. The latest industrial census showed 12,624 industrial establishments employing 332,323 workers; production value was $802,839,189. Chief items are textiles, iron and steel products, shoes, cement, soap, flour, beer, paper, furniture, and petroleum products. The cotton textile industry was estimated in August 1945, to have 200 mills with P150,000,000 capital, 55,000 workers, 550,000 spinning needles, and 32,000 looms; 1944 production was valued at P480,000,000. A new refinery near Mexico City, with a daily capacity of 50,000 barrels, was scheduled for completion by the end of 1945. Beer production in the first 10 months of 1944 was 266,740,382 liters as against 259,256,484 liters in all of 1943.

Finances and Economic Conditions.—Originally announced budget figures for 1945 were P1,006,000,000 but President Ávila Camacho stated in January that extra-budgetary expenditures would total P260,000,000; they were to be financed by three government loans at 6 per cent; no government loans were contracted in 1944. The federal district (including Mexico City) announced a 1945 budget of P130,000,000, the largest in its history. The original budget for 1944 totalled P1,101,815,699.34 but this was later increased to P1,571,925,491.80. Income for 1944 was P1,285,123,839; both that and expenditures constituted a record. The largest sources of revenues were, in order, income taxes, industrial taxes, export taxes, import duties. Amendments to the income-tax law providing for pay-as-you-go collections gave the government additional revenues which were used for public works. Chief items of 1945 budgetary expenditures were agriculture, P174,000,000; education, P171,000,000; national defense, P170,000,000; public works P160,000,000; debt service, P82,600,000. Note circulation Jan. 1, 1945, was P1,358,338,491 as against P1,170,846,000 one year earlier. Deposits and sight obligations of the Bank of Mexico Jan. 1, 1945, were P1,058,056,376 as against P732,300,000 one year earlier. Metallic coins in circulation Jan. 1, 1945, totalled P528,243,076.96 as against P446,804,110.75 one year earlier. The wholesale price index for the federal district Jan. 1, 1945, was 237.9 as against 100 in 1929. There was little attempt at official rationing in 1944 and inflation continued to be serious. The government early in 1945 centralized all gold imports and exports in the Bank of Mexico. A serious economic weakness in 1944 was the general failure of the fuel supply. The government in June 1945, announced a 10-point program to promote tourism, stating that 205,000 tourists in 1944 had spent P270,000,000. Long-range industrial requirements were estimated in 1945 at $383,000,000.

Foreign Trade.—Imports for 1944 were P1,348,635,000 and exports P1,047,846,000; the import balance was the second such recent instance, and was due to heavy food purchases and the slackening of wartime exports. The United States supplied 85 per cent of Mexico's imports, and took a like percentage of her exports.

Principal Events.—Soviet Ambassador Constantine Oumansky and eight others were killed January 25 in a plane crash on leaving Mexico City for San José, Costa Rica; later investigations failed to prove charges of sabotage. The joint Mexican-United States Commission for Economic Development was dissolved by Presidents Roosevelt and Ávila Camacho January 29 after having essentially completed its program. Hearings in the U. S. Senate in February on the water treaty with Mexico reflected vigorous organized opposition from California but the treaty was approved on April 18 by a vote of 76-10; Mexico later ratified the treaty by a large vote. A train collision February 1 at Cazadero, north of Mexico City killed 193 persons. Communications Minister Maximino Ávila Camacho, brother of the president, died February 17. The Inter-American Conference on Problems of War and Peace met at Mexico City from February 21 to March 8 and adopted important political and economic measures. An Ex-

peditionary Air Force of 298 men joined U.S. forces at Manila on May 1. A comprehensive law regulating the practice of professions took effect May 28. Minister of Government Miguel Alemán resigned June 5 to become a presidential candidate for the 1946 elections; it appeared likely that he would get the nomination of the PRM in December. Foreign Minister Ezequiel Padilla resigned July 11 but did not announce himself as a presidential candidate until September 3; though formerly democratic and pro-United States, he was rumored to have the political support of the ultra-conservative *Acción Nacional* and the highly controversial *Sinarquistas*. Padilla was succeeded as Foreign Minister on September 2 by Francisco Castillo Nájera, ambassador to the United States, who in turn was succeeded by Antonio Espinosa de los Monteros, Mexican financier and economist. President Ávila Camacho announced on July 2 that some 550 army generals would be retired but would retain rank and pay; 84 generals would be left in active service. The government on August 30 recognized the Spanish government-in-exile established at Mexico City.

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MEXICO CITY CONFERENCE. See INTER-AMERICAN AFFAIRS; PAN AMERICAN AFFAIRS; WORLD POLITICS.

MICA. Production and consumption of all kinds of mica except sheet and punch increased in 1944, according to the United States Bureau of Mines. The output of sheet and punch mica in the United States in 1944 was 1,523,313 pounds valued at $3,262,711 compared with 3,448,199 pounds valued at $3,228,742 in 1943. Punch mica supplied 55 per cent of the 1944 total or 835,402 pounds valued at $147,635 compared with 2,691,083 pounds valued at $473,955 in 1943, or 78 per cent of domestic production in that year. The use of substitute or alternate materials such as ceramics, glass, silicone resin and rubber, Lectrofilm, and paper, as well as the increased cost of mica, have contributed to the decreasing demand for sheet and punch mica.

MICHIGAN. East North Central state, United States; admitted to the Union Jan. 26, 1837. Population (1940): rural, 1,801,239; urban, 3,454,867; total, 5,256,106. Land area, 57,022, divided into 83 counties. Chief cities, with 1940 populations: Detroit, 1,623,452; Grand Rapids, 164,292; Flint, 151,543; Saginaw, 82,794; Lansing, the capital, 78,753; Pontiac, 66,626; Dearborn, 63,584.

Chief State Officers, 1945.—Governor, Harry F. Kelly; lieutenant governor, Vernon J. Brown; secretary of state, Herman H. Dignan; treasurer, D. Hale Brake; auditor general, John Morrison; attorney general, John R. Dethmers.

Judiciary.—Chief justice of the Michigan Supreme Court, Raymond W. Starr; associate justices, Howard Wiest, Henry M. Butzel, George E. Bushnell, Edward M. Sharpe, Emerson R. Boyles, Neil E. Reid, Walter H. North.

Legislature.—The state legislature (Senate, 32 members; House of Representatives, 100) convenes biennially in odd years on the first Wednesday in January.

Education.—Public elementary schools (1943–44)[1], 5,037; teachers, 19,285; pupils, 582,534. Public junior and senior high schools (1943–44), 680; teachers, 12,670; students, 343,824; average yearly salary of elementary, junior, and senior high school teachers, $1,992. Education in Michigan is compulsory for all children between the ages of 6 and 16, inclusive. Total state appropriation for education (1943–44), $61,056,196.

[1] Latest school year reported.

Finances.—Following is a statement of finances for the fiscal year 1944–45, supplied by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$ 75,593,475.33
Receipts, 1944–45	513,156,849.73
Total	$588,750,325.06
Disbursements, 1944–45	505,885,779.37
Balance, beginning of fiscal year 1945–46	$ 82,864,545.69

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following tables:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	53,378	57,760	66,785
Oats (1,000 bu.)	43,223	44,100	65,072
Buckwheat (1,000 bu.)	386	512	416
Wheat (1,000 bu.)	16,320	23,022	26,196
Barley (1,000 bu.)	5,172	3,900	4,320
Rye (1,000 bu.)	1,405	949	930
Sugar beets (1,000 short tons)	857	519	680
Hay:			
Alfalfa (1,000 tons)	1,831	1,637	1,680
Clover and timothy (1,000 tons)	1,359	1,550	1,644
Tame (1,000 tons)	3,424	3,376	3,541
Soybeans for beans (1,000 bu.)	837	1,595	1,815
Beans, dry edible (1,000 bags)	4,509	4,158	3,989
Potatoes (1,000 bu.)	23,669	18,360	19,550
Cherries (tons)	35,610	54,600	9,300
Apples (1,000 bu.)	7,681	7,625	1,500
Peaches (1,000 bu.)	2,305	3,600	3,848
Pears (1,000 bu.)	1,114	1,193	125
Grapes (tons)	41,600	34,000	11,400

MIDDLE CONGO or **MOYEN CONGO.** See FRENCH EQUATORIAL AFRICA.

MIDWAY ISLANDS. An island group in the Pacific Ocean, some 1,300 miles north by west of Honolulu, or, roughly midway between North America and Asia. The group consists of a low coral atoll, 18 miles in circumference, enclosing two small islands (Sand Island and Eastern Island), and has a total land area of 28 square miles. The islands were unofficially claimed for the United States in 1859, and officially in 1867. Since 1903 they have been under the United States Navy Department. The surface of the islands, which rise only a few feet above sea level, is characterized mainly by sand dunes, coarse grass, and bushes. Congressional appropriations in 1939 and 1941 provided for the development of the islands as an air and submarine base. Although repeatedly attacked by Japanese sea and air forces a few hours after the raid on Pearl Harbor, Dec. 7, 1941, the Midway Islands remained in American hands and continued to be used throughout the Pacific war as a base for attacks on the Japanese.

MILITARY AVIATION. See AERONAUTICS.

MILITARY GOVERNMENT. See under WAR POLICY OF THE UNITED STATES.

MILK. Production of milk on the farms of the United States in 1944 was estimated by the Department of Agriculture at 118,952,000,000 pounds as compared with the average production

in 1934–43 of 108,213,000,000 pounds. Final figures for 1945 were not available in December, but the monthly production figures up to and including September showed increases for every month except February over the 1944 production, and increases for every month over the average production.

MINERAL EXPLORATION. See MINES, U.S. BUREAU OF.

MINERAL WOOL. According to the United States Bureau of Mines, a total of 38 companies operating 51 plants in 19 states turned out 568,296 short tons of mineral wool products valued at $54,482,796 in 1944, as compared with 551,524 tons valued at $43,670,710 in 1943. During 1944 there was a marked advance in industrial insulation, resulting from the larger requirements of the armed services for mineral wool insulation products on ships, aircraft, tanks, and other military equipment, as well as the realization by industry that complete insulation is necessary to maintain maximum efficiency and production during the war period.

MINERALOGY. Quartz Oscillator-Plates.—V-J Day brought the quartz radio crystal industry to an abrupt end. This little known industry, created hastily in 1942 at a total cost of almost a half billion dollars to supply frequency control units for military radios, manufactured in all approximately 60,000,000 units over the war years. About 24 per cent of the production went into aircraft radios, 20 per cent into tank and other ground vehicle sets, and 42 per cent was used in walkie-talkie and other portable combat radios. The magnitude of the achievement appears when it is considered that the entire prewar industry over the 20-year period from the start in 1921 to 1940 produced less than 300,000 units. The piezoelectric effect itself was discovered in 1881 by Pierre and Jacques Curie and was first put to military use at the close of the First World War when Paul Langevin, in Paris, designed quartz plates for sending out and receiving underwater sound waves for the purpose of submarine detection. The application of the piezoelectric to radio did not come until 1921, when W. G. Cady used vibrating quartz plates to control and stabilize the frequency of vacuum tube oscillators. Quartz found only limited use for submarine detection in the Second World War, other more sensitive electronic devices largely being used for the purpose, but the radio applications were enormous.

One of the major difficulties in establishing the new industry was in obtaining an adequate and continuing supply of raw material. Thousands of tons of raw quartz crystals, averaging roughly $8 a pound and ranging up to $25 a pound and more with increasing size and quality were imported from Brazil, where the purchasing and initial grading was carried on under the direction of United States governmental agencies and private importers. A considerable effort also was made to extend and mechanize the primitive mining and distributing industry in Brazil. A stockpile of some millions of pounds of raw quartz was built up in the United States by the Metals Reserve Corporation, the material being graded by the National Bureau of Standards, and this and privately imported quartz was allocated to industry by the War Production Board. During 1942 the supply situation became acute, due to difficulties of sea transport, and considerable amounts of quartz were flown by plane from Brazil to the United States and even to England. Quartz occurs in Brazil principally in the states of Minas Gerais, Goyaz (Goiaz), and Baia (Bahia), where it is found in small, widely scattered surface deposits. The mines were worked mainly by the pick and shovel method. Most of the individual deposits afforded only a few tons of quartz at most and were soon worked out. Efforts by government agencies and others to find or develop commercial supplies of quartz within the United States and in other Allied countries proved unsuccessful and only a few tons of domestic quartz, mostly from Arkansas, were processed. Most of the raw quartz used contained natural crystal faces and hence was relatively easy to orient for the preliminary sawing operations. Broken, unfaced quartz was relatively abundant and cheap but efforts made to equip and teach the industry to use this difficult to handle material met with reluctance. An effort was made to grow large quartz crystals artificially, but with no success. Other types of piezoelectric substances, however, in large demand for sonic detecting devices and other war applications were grown artificially in very large amounts, especially the so-called ADP—ammonium dihydrogen phosphate. The artificial substances in general are not comparable to quartz for radio applications because of undesirable physical and chemical properties and their relatively large change in frequency with variation in temperature.

Taking a prewar laboratory-scale quartz cutting industry and equipping it almost overnight on a mass production scale with modern precision tools constituted a major problem. For many types of equipment, especially lapping machines, saws and X-ray units, designs had to be created and then manufacturers found to produce the apparatus. Many of these operations were bolstered with high priorities and financed with government funds through the Defense Supplies Corporation. Most of the equipment was held in Signal Corps pools and allocated to the crystal manufacturers. The stringent specifications set up for most types of oscillator-plates necessitated precise control of cutting angles. Over 300 goniometric X-ray units designed for the purpose were supplied, principally by General Electric and North American Philips, marking the first use of X-rays as a mass production industrial tool. Other difficulties confronting the newly established industry which had to be overcome in the face of insistent demands by the armed services for immediate and large production, were the scarcity of trained personnel, uninformed management, and the general lack of technical information on manufacturing methods and equipment.

Responsibility for procurement of the quartz plates rested largely in the Crystal Section of the Office of the Chief Signal Officer, War Department. This group was supplemented by the Crystal Branches of the Signal Corps Laboratories at Fort Monmouth, N. J., and of the Aircraft Radio Laboratories at Wright Field, Ohio. A great deal of credit is due to these agencies, and also to the Bell Telephone Laboratories, which supplied invaluable technical information, for their work in guiding the development of the industry against extremely adverse conditions. While the postwar use of crystals in radios and telephony will be large as compared with 1939, the present productive capacity of the industry is so great that most manufacturers will be forced to close down.

Technical Symposia on Quartz.—Two symposia of technical papers describing the principles of the design and operation of quartz oscillator plates and reviewing the methods developed for the manufacture of such plates have been written

for publication in the *Monograph Series* of the American Association for the Advancement of Science and in the *Journal* of the Mineralogical Society of America. The latter symposium, already published (*American Mineralogist*, vol. 30, pp. 205–468, 1945), comprises a group of 14 papers concerned primarily with the practical aspects of the field. The geological occurrence and methods of inspecting and grading of raw quartz are discussed, and a detailed description is given of the various methods used to orient the raw crystals preliminary to sawing. The prewar orientation techniques were based on optical and etching methods and on techniques in which mechanical measurements were made from the external growth faces of the raw crystals. These methods permit of an accuracy of orientation of only a few degrees of arc and were supplanted during the war by precision X-ray techniques affording measurements accurate to 5 or so minutes of arc. A high degree of accuracy is needed since several important operating characteristics of the plates depend in a sensitive way on the specific angle at which the plates are cut from the raw crystal. The principal methods of sawing, lapping and finishing quartz oscillator-plates also are described in considerable detail in this symposium but the electronic side of the field is touched only in passing.

Diamonds.—A symposium of 17 papers describing recent researches on the atomic structure and physical properties of the diamond has been published (*Proceedings*, Indian Academy of Sciences, Sect.A,vol.19,1944). Sir C. V. Raman discusses the long standing problem of the symmetry of diamond, whether tetrahedral or octahedral, and suggests the existence of four different structure-forms in which the position of the carbon atoms are identical but in which the orientation of the tetrahedral carbon atoms themselves differ. Two of these structure-forms are tetrahedral and two octahedral. Most diamonds apparently consist of one or the other of the tetrahedral forms, or of both in twin position, and correspond to the Type I of Robertson, Fox and Martin showing infra-red absorption. Type II diamonds, the rarer variety, consist of either or both of the octahedral forms. Evidence for the existence of the several forms is found in luminescence effects caused by ultraviolet light and in variations in the intensity of X-ray reflection, the absorption spectra and optical characters. Three types of diamond can be distinguished by absorption in the ultraviolet. The most transparent kind has a sharp cut off at 2250Å; the second kind has a clearly marked absorption band at about 2370Å, with feeble transmission at shorter wave lengths; the third and commonest kind has a cut off at about 3000Å with subsidiary bands at longer wave lengths. Some diamonds exhibit simultaneously more than one and even all three types of absorption spectra. Other studies in the symposium concern the photoconductivity, elastic constants and thermal expansion, magnetic properties and Raman spectra.

The supply of industrial diamonds appears to have been sufficient throughout the war years in the face of greatly increased demand. Especially large amounts have been used in the manufacture of diamond bonded grinding tools and in diamond edged sawing wheels such as are employed in the quartz and ceramic industries. The bulk of the production of industrial diamonds came from the Belgian Congo, notably the Beceka Mine, and smaller amounts were obtained in Brazil, the Gold Coast of West Africa and elsewhere. A large amount of work has been done in recent years with a view of improving the techniques for preparing industrial diamonds for industrial applications. Mention may be made of the high frequency arc method of drilling diamond dies, and in the use of X-ray goniometers in orienting rough stones preliminary to drilling or cutting.

Miscellaneous Developments.—Two new cobalt and nickel minerals, cattierite (CoS_2) and vaesite (NiS_2), have been detected in ores from the Katanga district, Belgian Congo. X-ray study proves that both minerals are related in atomic structure to pyrite, FeS_2. In the case of the nickel compound, specimens from other localities have been found which contain varying amounts of iron and are intermediate in properties to pyrite and vaesite; this material has been termed bravoite. Other new minerals described in the present year include jusite, a fibrous zeolite from Württemberg, Germany; banalsite, a barium-rich feldspar from Wales; yenerite, a lead, antimony sulfosalt from Turkey allied to boulangerite; and a hydrous iron sulfate, termed pseudoapatelite, that resembles jarosite. Another new hydrous sulfate of iron, named sharkeyite, has been discovered as an efflorescence on iron ores from Missouri. Two new and rare tellurites of iron from Goldfield, Nev., have been named blakeite and mackayite. The mineral simpsonite, a rare tantalate of calcium, has been found in commercially important amounts in Rio Grande do Norte Province, Brazil. The name brazilianite has been given to another new and beautifully crystallized mineral from Brazil.

Liége Museum.—The museum of the University of Liége, Belgium, was destroyed by fire on the day the city was evacuated by the Germans. The major portion of the display and teaching mineral collections was lost together with the library and most of the research equipment. An appeal to American mineralogists has met with wholehearted response by national and local societies and individuals, and it is hoped that sufficient material will be donated to replenish both the Liége institution and possibly other war ravished museums in Allied countries.

CLIFFORD FRONDEL,
Department of Mineralogy, Harvard University.

MINES, United States Bureau of (Department of the Interior). During the fourth and final year of American military participation in the Second World War, the Bureau of Mines again devoted all of its research and technical facilities to exploring new ore reserves, developing and improving metallurgical processes, conducting investigations and research on coal, petroleum, explosives and other commodities, promoting safety in the mineral industries, and engaging in many other essential services directly related to the prosecution of the war.

The munitions, weapons, and fuels to propel the mechanized equipment which gave immense striking power to the United States military and naval forces were made possible largely by a record-breaking production of minerals and fuels, with private industry performing miracles of mining, processing, and manufacturing. As a federal agency designated by law to aid industry in this type of work, the bureau's scientists played an important role in the development of many of the new production techniques which were advantageously utilized by producers, and in providing industry and the war agencies of government much economic and statistical data essential to accurate planning.

Bureau activities included the delineation of quantities of hitherto unexploited raw materials, metallurgical investigations of new methods of utilizing the vast reserves of low and off-grade domestic mineral deposits, and maintenance of helium production at the same high rate as during the preceding year. To help meet heavy military and industrial fuel requirements, the bureau intensified further its coal, coke, and petroleum research activities, conducted a nation-wide fuel conservation program, and acted as consultant and technical adviser to industrial plants, government war agencies and the military services.

Mineral Exploration.—As the war entered its final and most intensive phase, demand for raw materials required for the production of arms and munitions increased correspondingly. To help meet these unprecedented mineral requirements, the Bureau of Mines conducted exploratory projects on 150 deposits in 36 states and Alaska. In the same period, approximately 850 mineral deposits were examined by bureau investigators. Several million tons of usable iron ore were made known in Arizona, Utah, Alaska, New Jersey, New York, Pennsylvania, Missouri and Virginia, and studies in Alabama showed that usable iron ore may be recovered from tailings. The bureau also investigated 44 deposits of such ferroalloying minerals as manganese, tungsten, nickel and chromium.

In the field of nonferrous metals, exploratory projects conducted by the bureau on 28 lead and zinc deposits in 12 states disclosed large reserves in Illinois, Idaho, Nevada, Kansas and Oklahoma. The Leadville Tunnel—a major drainage project undertaken by the bureau to revive the formerly productive Leadville district in Lake County, Colo.—was advanced 4,800 feet during the past year.

Copper projects in 9 states resulted in the discovery of two important sources of supply in Pima and Coconino counties, Ariz. Continuing the quest for new sources of tin, bureau investigators marked out a promising deposit on the remote Seward Peninsula in Alaska. In Napa County, Calif., a low-grade ore deposit containing the equivalent of 10,000 flasks of mercury was delimited. To stimulate the production of strategic mica, investigations of pegmatites were carried out on six projects in six states.

Large-scale exploration for bauxite, one of the ores of aluminum, was continued in Alabama and Arkansas, and present reserves are estimated at approximately 90 million tons of all grades. Intensive bureau explorations in 11 widely scattered states and Alaska materially increased domestic reserves of such nonmetallic minerals as barite, sillimanite, potash, optical calcite, corundum and asbestos. Discovery of large reserves of sillimanite in the southeastern states greatly reduced the dependence of the United States on foreign imports of this mineral which is utilized in the manufacture of spark plugs and refractories for high-temperature furnaces.

Metallurgical Activities.—Important progress was made in the development of new methods of utilizing the vast domestic reserves of low and off-grade mineral deposits. Because of pilot plant and co-operative investigations in the electrolytic production of manganese, dependence upon foreign sources of supply has been greatly lessened. Construction of experimental ferroalloys pilot plants at Rolla, Mo., and Redding Calif., was continued and plans were completed for a similar plant at Raleigh, N.C. At the bureau's Boulder City electrolytic chromium pilot plant, numerous samples of low-grade Montana chromite were successfully treated. In the course of extensive beneficiation tests on iron ores and sponge iron products, significant advances were made in the hydraulic classification and flotation of Alabama iron ores. Samples of Shasta, Calif., magnetite which had been previously subjected to laboratory beneficiation tests were magnetically separated and the high-grade concentrates reduced at the Laramie, Wyo., sponge iron pilot plant. Investigations of methods of reducing the zircon in Oregon beach sands to zirconium metal were also initiated last year at the Northwest Electrodevelopment Laboratory at Albany, Oreg. Work was continued at several laboratories and pilot plants on the extraction of alumina from low-grade bauxites, clays and alunite. At Salt Lake City, Utah, considerable progress was made in the reduction of the ores of copper, lead and zinc and a pilot plant for reduction of zinc with methane was completed at Rolla, Mo.

Laboratory and pilot plant flotation tests on Metals Reserve Company stockpiles of Spanish, Mexican and domestic fluospar contributed substantially to the increase in commercial drilling of this strategic mineral, while experiments conducted at the Electrotechnical Laboratory at Norris, Tenn., indicated that sillimanite concentrate can be substituted for scarce kyanite in the manufacture of refractory brick.

Petroleum and Natural Gas.—Recognizing the need for augmenting the nation's oil reserves which have been seriously depleted by nearly four years of war, bureau scientists continued their research in the primary extraction of oil, secondary recovery, and chemistry and refining processes. Studies of primary methods of crude oil extraction were intensified in California, in the Rocky Mountain fields, and particularly in the gas-condensate fields of the Gulf Coast region. Engineers studied and reported to the navy on reservoir conditions in Naval Petroleum Reserve No. 1 at Elk Hills, Calif. More than 600 samples of unconsolidated cores were analyzed, and gas liberation and shrinkage data as well as other physical characteristics of reservoir oils were determined.

Petroleum chemistry and refining research during the past year was directed primarily toward achieving the maximum utilization of crude oils in the manufacture of fuels for the latest types of aviation engines. Because of increased military consumption of sulphur-bearing oils, a comprehensive program of research on sulphur in petroleum was inaugurated. During the year, 32 special restricted reports describing several phases of the work on aviation fuels were made available to refiners and members of technical committees.

Helium.—Although the bureau's production of helium for direct military and naval uses declined last year, commercial requirements increased by 65 per cent. To meet the anticipated peacetime demand, excess helium which is being extracted from privately-owned natural gas normally supplying domestic and commercial markets is being injected into the government-owned Cliffside Gas Field. Here in this underground cache it will be held for future needs. In recognition of the outstanding production record for war, the bureau's Otis helium plant received the army and navy "E" award, while the Amarillo

and Exell plants were each awarded a star for their "E" flags. The United States government, through the Bureau of Mines, is the only commercial producer of helium gas in the world.

Research in Coal.—To help meet the fuel requirements of the armed forces and provide a sufficient supply of fuel for normal industrial uses in the postwar era, the bureau conducted an extensive program of coal research during the past year, emphasizing improved preparation and upgrading of coal for special uses, better mining methods, and conservation through more effective utilization. Bureau engineers advised many government agencies in the purchase and utilization of fuels and fuel-burning equipment and sampled more than 20,000 specimens. At a large number of army camps, recommended changes in the operation of equipment saved thousands of tons of coal. The bureau investigated methods of combating corrosion in the condensate return lines of boilers, thus affording better protection for steel equipment valued at approximately $300,000,000. In cooperation with anthracite producers, the bureau studied the prevention of flooding of operating mines and outlined more efficient methods of mining in steeply pitching anthracite beds. Because of the dwindling supply of high-grade metallurgical coke, the bureau expanded its research in methods of reducing the sulphur and ash content of coking coals and also conducted extensive explorations in western, southern and eastern coal areas for minable reserves of coking fuel. Laboratory coking tests and petrographic examinations of more than 150 coals from the United States, Chile and China were made. To help improve the design and operating efficiency of boiler furnaces, the bureau conducted studies of slag deposits on boiler tubes from melted coal ash. More than 200 ash samples were analyzed and the burning characteristics of emergency fuels were determined. For the first time in the United States, the electron microscope was used to determine surface area and size distribution of powdered coal. With the assistance of nearly 20,000 volunteers and more than 13,000 industrial plants, the bureau successfully conducted a nationwide fuel efficiency program directed at conserving all types of fuel and heat energy.

Gas- and Dust-Explosion Research.—To reduce explosion hazards in coal mines and in many types of plants, tests were made on industrial powders, dusts and vapor-air mixtures, and recommendations and safety codes were formulated for minimizing or preventing explosions in plants producing explosive materials.

Synthetic Liquid Fuels.—Construction was started on three of the four major installations in the bureau's five-year synthetic liquid fuels program, designed to provide the "know how" for industry to produce gasoline and oil from coal, lignite, and oil shales. Buildings were being erected and equipment installed for a coal research and development laboratory at Bruceton, Pa., where a staff of more than 100 scientists already is engaged in fundamental research work, process development, and engineering design, in temporary quarters. At Laramie, Wyo., a laboratory for research on oil shale is under construction, and satisfactory progress was made in the construction of an oil shale demonstration plant on the naval oil shale reserve near Rifle, Colo. An oil-shale mine was opened here to supply the plant and to enable the bureau to develop low-cost methods of mining oil shale. Until the plant and laboratory are completed, studies of the production of marketable oil products from oil shale is being carried on in temporary quarters.

A fourth major unit in the bureau's five-year synthetic liquid fuels program—a demonstration plant for the production of gasoline and oil from coal and lignite—also came into being later in 1945, when the bureau acquired from the War Department a $17,500,000 synthetic ammonia plant known as the Missouri Ordnance Works, at Louisiana, Mo. This plant, which is to be converted into a demonstration plant for the large-scale testing of processes developed at the Bruceton, Pa., laboratory, will save the government several million dollars in construction costs and is expected to accelerate the federal synthetic liquid fuels research and demonstration program.

Explosives Research and Testing.—Promoting safety and efficiency in the manufacture and handling of explosives, the bureau made more than 5,000 analyses, including 419 chemical analyses, 2,717 gallery tests and 2,029 other control tests. Five permissible explosives were added to the list of approved explosives which now contains 178 names. In co-operation with the army and navy, studies of the dangers inherent in large-scale storage of explosives were continued. The bureau investigated acetylene generator explosions in shipyards, explored the causes of a disastrous fire following the failure of a storage tank containing liquefied natural gas at Cleveland, Ohio, and made a study of the conditions under which the permissible charge for blasting coal may be safely increased. In developing a new test for detonators, bureau explosives engineers invented an electronic chronoscope capable of measuring time intervals of a millionth of a second.

Promotion of Health and Safety.—Shortages of manpower and equipment, as well as the continued need for increased production of minerals, gave added impetus to the bureau's safety and security programs during the past year. Major activities included accident-prevention training, safety education, accident investigations, testing of materials and equipment, field and laboratory studies of the occurrence of gases, dust, temperatures and other conditions affecting the health of mine workers, coal mine inspections and reports, explosives control, and co-operation with the armed forces in the prevention of sabotage. Federal inspectors last year examined more than 3,000 coal mines. Bureau safety engineers trained over 18,000 employees in first-aid and mine-rescue procedures, assisted in conducting first-aid contests in five states, gave about 1,200 workers and officials complete accident prevention courses and approximately 600 partial courses, and attended 494 safety meetings in 29 states. Assisting in mine-rescue and recovery operations at virtually all major mine disasters occurring during the year, bureau personnel investigated 31 mine explosions in 12 states, 52 mine fires in 20 states, and 132 miscellaneous accidents in 30 states.

During the year, the bureau conducted 1,327 explosion tests to determine the permissibility of electrical equipment in mines, and special investigations of the safe design of equipment intended for naval use were continued. Protecting the lives of the thousands of workers in mines and industrial plants, the bureau analyzed approximately 19,000 gas and dust samples, improved procedures for determining atmospheric contaminants, made many recommendations for eliminating unhygenic conditions, tested the ef

fectiveness of respiratory protective devices, and, in co-operation with the Navy Department conducted confidential studies to determine the toxic gases produced by the decomposition of cable insulation and plastic materials used in electrical equipment. Dust studies were made in more than 50 bituminous and anthracite mines.

Mineral Production Security Program.—Ended officially on June 30, 1945, the Minerals Production Security Division was responsible to an appreciable extent for the prevention of subversive activities in the minerals industry during the Second World War. Acting in co-operation with the army, the navy, FBI, and other groups, bureau security engineers made surveys at 36 previously uninspected facilities, and conducted 395 reinspections, making a total of 1,598 reinspections during the past three years.

Explosives Control.—Completing more than three and one-half years of successful administration of the Federal Explosives Act, the bureau last year issued approximately 90,000 licenses through 3,900 volunteer licensing agents and special investigators inspected more than 16,000 individual magazines. Although 750,000 licenses have been issued under the Federal Explosives Act, only 56 licenses have been revoked. Of this total 14 licenses have been restored upon the assurances of licensees that they would comply with the act in the future.

Economics of the Mineral Industries.—The demand for the bureau's economic and statistical services continued to be heavy last year, and in addition to providing government war agencies with accurate and up-to-the-minute figures on production, distribution and consumption of all mineral commodities, the bureau's economic and statistical information proved a valuable tool in keeping accident rates within bounds under difficult war conditions. More information on foreign mineral sources was gathered and the bureau's economic and statistical program was expanded to provide basic information required by the government in dealing with the surplus scrap problem. War experience demonstrated the need for advance stockpiling of certain domestically-scarce minerals, and the bureau's commodity specialists co-operated extensively with the military services in the analysis of the problem.

Public Reports.—In response to a rising demand from industry, war agencies, and the public for information on all phases of the mineral industries, the bureau published numerous technical and statistical reports, but the number of copies printed and distributed was restricted to essential publications. Among the 660 publications released by the bureau were bulletins, technical papers, *Mineral Yearbook* chapters, miners' circulars, reports of investigations, information circulars, and numerous periodic statistical reports for industry. The bureau's Washington library of selected reference materials was increased by 2,351 books and pamphlets, and 207 bound volumes of periodicals. In addition, 247 periodicals were received regularly and 19,611 publications were loaned for outside use. Free educational films produced under the bureau's supervision and paid for by private industry were in constant demand for war-training and rehabilitation classes, engineering and scientific societies, civic groups, educational institutions, and military centers in the United States and in many foreign countries. The films were exhibited on 84,959 occasions and reached audiences totaling 7,932,361 persons. Three new sound films, *A Story of Copper, Sand and Flame,* and *A Story of Arc Welding,* were added to the bureau's library of more than 10,000 reels.

R. R. SAYERS,
Director, United States Bureau of Mines.

MINNESOTA. West North Central state, United States; admitted to the Union May 11, 1858. Population (1940): rural, 1,402,202; urban, 1,390,098; total, 2,792,300. Land area, 80,009 square miles, divided into 87 counties. Principal cities, with 1940 populations: Minneapolis, 492,370; St. Paul, the capital, 287,736; Duluth, 101,065; Rochester, 26,312; St. Cloud, 24,173; Winona, 22,490.

Chief State Officers, 1945.—Governor, Edward J. Thye; lieutenant governor, C. Elmer Anderson; secretary of state, Mike Holm; treasurer, Julius A. Schmahl; auditor, Stafford King; attorney general, J. A. A. Burnquist.

Judiciary.—Chief justice of the Minnesota Supreme Court, Charles Loring; associate justices, Julius J. Olson, Harry H. Peterson, Luther W. Youngdahl, Thomas Gallagher, C. R. Magney, LeRoy E. Matson.

Legislature.—The state legislature (Senate, 67 members; House of Representatives, 131) convenes biennially in odd years, on Tuesday after the first Monday in January.

Education.—Public elementary schools (latest report, 1943–44 school year), 8,195; teachers, 12,196[1]; pupils, 313,658[1]. Public junior high schools, 159; teachers 1,324; students, 52,073. Public senior high schools, 495; teachers, 6,254; students, 112,300. Education in Minnesota is compulsory for all children between the ages of 8 and 16, inclusive. There are six state teachers colleges. The University of Minnesota receives financial aid from the state. Total state appropriation for education (1944), $14,723,951[2]; by cities and counties, $37,510,791[3].

Finances.—The following figures regarding Minnesota's finances for the fiscal year 1944–45 were furnished by the state treasurer's office:

Auditor's cash balance in treasury, beginning of fiscal year 1944–45	$ 34,072,419.39
Receipts, 1944–45	170,762,667.11
Total	$204,835,086.50
Disbursements, 1944–45	164,734,383.25
Auditor's cash balance, beginning of fiscal year 1945–46	$ 40,100,703.25[1]

[1] Does not include $199,357,163.30 in trust and related fund invested assets.

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Production Preliminary 1945
Corn (1,000 bu.)	163,330	253,399	217,440
Oats (1,000 bu.)	140,307	155,960	243,938
Buckwheat (1,000 bu.)	237	945	615
Wheat (1,000 bu.)	23,596	20,689	21,910
Barley (1,000 bu.)	44,401	13,884	14,442
Rye (1,000 bu.)	5,197	1,221	2,178
Flaxseed (1,000 bu.)	9,751	6,514	12,375
Hay:			
Alfalfa (1,000 tons)	2,234	2,090	2,038
Clover and timothy (1,000 tons)	1,044	1,550	1,771
Tame (1,000 tons)	4,432	4,679	4,786
Wild (1,000 tons)	1,448	1,493	1,523
Soybeans for beans (1,000 bu.)	993	4,340	6,460
Tobacco (1,000 lb.)	550	744	840
Potatoes (1,000 bu.)	20,360	15,334	17,490
Apples (1,000 bu.)	206	182	130

[1] Kindergarten and spring primary included.
[2] Including $74,000 appropriated for training armed forces.
[3] Total expenditures for public elementary and secondary schools, minus state aids. Certain county appropriations are not included.

MINT ESTABLISHMENT, United States. The production of domestic coin by the United States mints during the fiscal year ended June 30, 1945, amounted to 2,646,134,101 pieces, which exceeded by 67,493,831 pieces the record production of the previous year. In 1944–45, 1,388,971,000 coins were manufactured for other governments, the largest single year's production of foreign coinage. The total coinage, domestic and foreign, amounted to 16,488½ tons, or an average of 46 tons per day.

Manufacture of the 1-cent piece from expended cartridge shells has been recently discontinued, and the mints have returned to the prewar method of making this coin. (Manufacture of the zinc-coated steel cent had been discontinued Dec. 31, 1943, at the time the shell cases were made available for use in the coinage of this denomination.)

The design for the Roosevelt dime has been approved, and production of the new coin will start Jan. 1, 1946. The design is by John R. Sinnock, of the Philadelphia Mint.

Production of medals for the navy, coast guard, marines and army exceeded that of any previous year, as orders continued heavy from the armed services. Among those manufactured were Distinguished Flying Crosses, Air medals, Bronze Star medals, Navy Crosses, Navy Expert Rifleman medals, Navy Expert Pistol Shot medals, Navy small gold stars, Legion of Merit medals, Silver Star medals and Purple Heart medals. Roosevelt Memorial and Truman presidential medals have been added to the list of historic medals made at the Philadelphia Mint, and are for sale to the public.

During the fiscal year 1945, $35 per fine troy ounce was paid for gold, while newly-mined domestic silver was purchased at $.71+ per fine ounce. The open market price of silver in New York (mean of bid and asked) was $.45062 per fine ounce.

During the year $65,290,844 in gold was sold by the Treasury for industrial use; 68,147,835 fine ounces of silver were sold under the Green Act at a price of $.71+ per ounce; 119,837,110 fine ounces of silver were issued under lend-lease procedure, and 877,715,175 ounces of silver were on loan to war industries as of June 30, 1945.

At the end of the fiscal year 1945, the Treasury holdings of gold bullion amounted to $20,212,838,145, and the stock of silver bullion was 1,875,355,592 fine troy ounces.

After the end of the war in Europe, experts from the United States Mint service were sent to Germany to assist in checking and identifying the tremendous hordes of gold and other precious metals found in the Merkers salt mines, and in numerous other secret caches.

LELAND HOWARD,
Acting Director of the Mint.

MIQUELON ISLANDS. See SAINT PIERRE AND MIQUELON.

MISSISSIPPI. East South Central state, United States; admitted to the Union Dec. 10, 1817. Population (1940): rural, 1,750,914; urban, 432,882; total, 2,183,796. Land area, 47,420 square miles, divided into 82 counties. Chief cities, with 1940 populations: Jackson, the capital, 62,107; Meridian, 35,481; Vicksburg, 24,460; Hattiesburg, 21,026; Greenville, 20,892; Laurel, 20,598.

Chief State Officers, 1945.—Governor, Thomas L. Bailey; lieutenant governor, Fielding Wright; secretary of state, Walker Wood; treasurer, Newton James; comptroller, Joe Latham; attorney general, Greek L. Rice.

Judiciary.—Chief justice of the Mississippi Supreme Court, Sydney Smith; associate justices, V. A. Griffith, W. G. Roberds, Harvey McGehee, Julian Alexander, and L. A. Smith.

Legislature.—The state legislature (Senate, 49 members; House of Representatives, 140) convenes biennially in even years on Tuesday after the first Monday in January.

Education.—Public elementary schools (latest report, 1943–44 school year), 1,319; teachers, 3,328; pupils, 487,330; average yearly salary of elementary school teachers, $818. Public high schools (1943–44), grades 9 through 12, 565; teachers, 1,197; students, 67,426; average yearly salary of high school teachers, $883. Education in Mississippi is compulsory for all children between the ages of 7 and 16. There are four teacher-training schools, two for whites and two for Negroes. These receive financial aid from the state, as do the following: the University of Mississippi, Oxford; Mississippi State College, Starkville; and Mississippi State College for Women, Columbus. Total state appropriation for education (1943–44), $8,787,097; appropriation by cities and counties (1943–44), $9,871,798.

Finances.—Following is a statement of Mississippi's finances for the fiscal year 1944–45, supplied by Newton James, state treasurer:

Balance in treasury, beginning of fiscal year 1944–45:	
General fund	$ 8,696,979.69
Trust fund	5,972,282.21
	$14,669,261.90
Receipts, 1944–45:	
General fund	$36,878,003.55
Trust fund	27,991,745.50
	$64,869,749.05
Disbursements, 1944–45:	
General fund	$26,800,662.16
Trust fund	26,198,358.11
Balance, beginning of fiscal year 1945–46:	
General fund	$18,774,321.08
Trust fund	7,765,669.60
	$26,539,990.68

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Production Preliminary 1945
Corn (1,000 bu.)	44,412	42,224	48,886
Oats (1,000 bu.)	4,900	15,096	15,477
Cotton (1,000 bales)	1,677	1,937	1,670
Hay:			
Tame (1,000 tons)	944	1,067	1,193
Soybeans for beans (1,000 bu.)	721	1,150	1,131
Peanuts (1,000 lb.)	16,151	12,555	13,000
Pecans (1,000 lb.)	5,920	8,300	7,830
Sweetpotatoes (1,000 bu.)	6,499	6,248	6,592
Potatoes (1,000 bu.)	1,423	2,210	1,836
Peaches (1,000 bu.)	886	1,105	1,418
Pears (1,000 bu.)	360	354	401

MISSOURI. West North Central state, United States; admitted to the Union Aug. 10, 1821. Population (1940): rural, 1,823,968; urban, 1,960,696; total, 3,784,664. Land area, 69,270 square miles, divided into 114 counties and the City of St. Louis. Principal cities, with 1940 populations: St. Louis, 816,048; Kansas City, 399,178; St. Joseph, 75,711; Springfield, 61,238; Joplin, 37,144; University City, 33,023; Jefferson City, the capital, 24,268.

Chief State Officers, 1945.—Governor, Phil M. Donnelly; lieutenant governor, Walter N. Davis; secretary of state, Wilson Bell; treasurer, Robert

W. Winn; auditor, Forrest Smith; attorney general, J. E. Taylor.

Judiciary.—Chief justice of the Missouri Supreme Court, James M. Douglas; associate justices, Albert M. Clark, George Robb Ellison, Ernest S. Gantt, C. A. Leedy, Jr., Laurance M. Hyde, Ernest M. Tipton.

Legislature. — Missouri's General Assembly (Senate, 34 members; House of Representatives, 150) meets biennially in odd years on the first Wednesday after the first day of January.

Education.—Public elementary schools (latest report, 1943–44 school year), 7,485; teachers, 17,344; pupils, 483,510; average yearly salary of elementary school teachers, $1,142. Public senior high schools (1943–44), 832; teachers, 6,994; students, 148,305; average yearly salary of senior high school teachers, $1,771. There are five state teacher training schools. These plus the University of Missouri and Lincoln University (for colored) receive financial aid from the state. Total state appropriation for education (1943–44), $22,356,822[1]; appropriation by cities and counties (1943–44), $35,424,272. Education in Missouri is compulsory for children between the ages of 6 and 16, inclusive.

Finances.—Following is a statement of Missouri's finances for the 1944 fiscal year, supplied by the state treasurer's office:

Balance in treasury, beginning of 1944 fiscal year	$ 50,129,780.87
Receipts, 1944 fiscal year	113,560,088.53
Total	$163,689,869.40
Disbursements, 1944 fiscal year	104,154,582.73
Balance, beginning of 1945 fiscal year	$ 59,535,286.67

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Production Preliminary 1945
Corn (1,000 bu.)	102,409	162,554	117,477
Oats (1,000 bu.)	42,694	29,970	31,960
Wheat (1,000 bu.)	26,438	23,800	24,360
Barley (1,000 bu.)	2,550	1,800	1,463
Rye (1,000 bu.)	512	840	847
Sorghums for grain (1,000 bu.)	981	1,617	1,020
Cotton (1,000 bales)	348	411	200
Hay:			
Alfalfa (1,000 tons)	576	806	813
Clover and timothy (1,000 tons)	904	900	1,000
Tame (1,000 tons)	2,937	3,481	3,688
Soybeans for beans (1,000 bu.)	2,397	10,605	10,770
Sweet potatoes (1,000 bu.)	798	800	665
Tobacco (1,000 lb.)	5,039	7,700	7,400
Potatoes (1,000 bu.)	3,844	2,232	2,992
Apples (1,000 bu.)	1,404	660	817
Peaches (1,000 bu.)	695	315	1,026
Pears (1,000 bu.)	354	175	350
Grapes (tons)	7,490	6,500	6,400

MITSCHER, Marc Andrew, United States naval officer: b. Hillsboro, Wis., Jan. 26, 1887. One of the Pacific war's most colorful combat officers, Vice Admiral Mitscher commanded the famous aircraft carrier *Hornet* at the beginning of the war with Japan; it was from her decks that General Doolittle's airmen took off on April 18, 1942, for the first American bombing raid on Tokyo. On June 4-6, Admiral Mitscher brought the *Hornet* through the battle of Midway. In January–February 1944, he directed carrier force operations against the Marshall Islands, Truk and Tinian–Saipan Islands, and later assumed command of the much publicized and deadly Task Force 58, which scored so heavily against the Japanese Fleet in the battle of the Philippine Sea, June 20, 1944. For the brilliant victory over Japan's navy on Oct. 22-30, 1944, in the vicinity of Mindoro, the Sulu Sea, and northeast of Luzon, he commanded Task Force 38, attached to Admiral Halsey's Third Fleet. Between January and May 1945, he directed task force attacks against the enemy in support of amphibious operations at Iwo Jima and Okinawa; on April 7, his aircraft accounted for the Japanese battleship *Yamato*, a light cruiser, and four destroyers. On May 11, Admiral Mitscher's flagship, the *Bunker Hill*, was hit by two Japanese suicide planes, with a loss of 373 killed, 264 wounded. Himself uninjured, Mitscher transferred to another warship. On July 14, 1945, he replaced Vice Admiral Aubrey W. Fitch as deputy chief of naval operations for air. On December 4, the Navy Department announced that Admiral Mitscher would become commander of the Eighth Fleet in the Atlantic under naval reorganization plans. Admiral Mitscher is a graduate of the United States Naval Academy (1910), and received his flight training at the Naval Air Station, Pensacola, Fla. His service awards include the Navy Cross; two gold stars in lieu of second and third navy crosses; the Distinguished Service Medal; two gold stars in lieu of second and third DSM's; the Legion of Merit; and the Philippine Liberation Service Medal.

[1] Figure does not include state appropriations to the above mentioned colleges and universities.

MOLDAVIAN SOVIET SOCIALIST REPUBLIC. See UNION OF SOVIET SOCIALIST REPUBLICS.

MOLOTOV, Vyacheslav Mikhailovich, Soviet statesman: b. Kirov, Kirov, USSR, March 9, 1890. Russia's Vyacheslav Molotov is, in the opinion of many, second only to Stalin in political power. Foreign commissar since 1939, succeeding Maxim Litvinov, and since May 1941, vice premier of the USSR, he is also a member and vice chairman of the powerful State Defense Committee. Molotov identified himself with the Russian revolutionary movement in 1905, taking part in the first organized rebellion against the czarist regime. He later wrote for revolutionary newspapers, and during one period edited *Pravda*, official organ of the Communist Party. He was repeatedly imprisoned for his organizational work. By February 1917, he was a member of the Petrograd Soviet Executive Committee, and in 1921, was elected secretary of the Central Committee of the Communist Party for the entire Soviet Union, and candidate member of the Political Bureau. Since 1926, he has been a member of the Political Bureau of the Communist Party. He became chairman of the Council of Peoples' Commissars (premier) in December 1930, and held that post until the spring of 1941, when he was replaced by Stalin. His appointment as foreign commissar in May 1939 marked a radical change in Soviet foreign policy which was followed by Russia's signing of a nonaggression pact with Germany in August. Molotov assumed his duties as vice chairman of the State Defense Committee shortly after the Nazi invasion of the Soviet Union (June 1941). On July 12, he signed the Russo-British mutual aid pact, and in May 1942, he went to England to conclude the 20-year Russo-British mutual assistance agreement. From London he went to Washington, and negotiated a lend-lease agreement with the United States. In April 1943, the Russo-Polish controversy exploded into news headlines with Molotov's announcement of the Soviet Union's suspension of diplomatic relations

with the London Polish government in exile. From October 1930, he presided at a three-power conference in Moscow with British Foreign Minister Anthony Eden and United States Secretary of State Cordell Hull, and from November 28–December 1, he attended the Teheran Conference with Marshal Stalin. In the latter month he signed the Czecho-Soviet mutual assistance pact. With the Polish dispute still political dynamite in April 1944, Molotov conferred in Moscow with Stanislaus Orlemanski, Catholic priest from Springfield, Mass., an advocate of Russo-Polish collaboration, and the following October, he met with Polish President Stanislaw Mikolajczyk with regard to his government's conflict with the London Poles. He had a few days previously attended a series of war conferences with British Prime Minister Winston Churchill, Foreign Minister Eden, and Averell Harriman, United States ambassador to Russia. In early February 1945, he accompanied Stalin to the Yalta Conference and in April, headed the Soviet delegation to the San Francisco Conference. He attended the meeting of the Big Three in Berlin, July 17–August 2, and in September, went to London as a member of the Council of Foreign Ministers. In December he participated with British Foreign Minister Bevin and United States Secretary of State James F. Byrnes in the Moscow Conference of Foreign Ministers.

MOLUCCA. See NETHERLANDS INDIES.

MONACO. A small principality on the northern shores of the Mediterranean, since 1860 surrounded by the French department of Alpes Maritimes, except for its harbor and a strip of seacoast. It is a narrow body of land between Nice and Menton, with an area of 370 acres and a population (1939) of 23,973. Since 968 (except between 1793 and 1815) it had been the property of descendants of the house of Grimaldi, the reigning Prince being an absolute ruler until 1911, when a constitution was promulgated providing for an Assembly of 21 elected members and a Council of State. The territory is divided into three communes, Monaco, La Condamine, and Monte Carlo, the last being the site of the famous gambling casino from which practically all the revenue of the principality is derived. Perfume and liqueurs are manufactured in La Condamine, and there is some exportation of perfumes, oranges, and olive oil; coal and wine being the chief imports. There is a small sheltered harbor. Customs duties are the same as in France. Prince Louis II, who succeeded his father, Prince Albert I, upon the latter's death on June 26, 1922, was born July 12, 1870. During the last year of the Second World War the Germans forced Monaco to expel alien residents and to exclude tourists, and subjected the life of the principality to controls (rationing, etc.) similar to those imposed on France, including an 8 o'clock curfew.

MONGOLIA. The term Mongolia was formerly applied to the region occupying some 1,500,000 square miles in central Asia, inhabited by the Mongols, with an estimated population of between 2,500,000 and 4,000,000. As used in 1945, however, Mongolia was generally understood to mean Outer Mongolia, the Mongolian Republic (q.v.). The middle portion of the original Mongolia, some 325,000 square miles in extent, comprised the Gobi, or Shamo Desert. The region as a whole coincided roughly with the great plateau, 3,000 to 5,000 feet above sea level, bounded on the north by the Altai and Sayan Mountains, on the east by the Greater Khingans, and on the west by the northeasternmost ranges of the Himalayas. This territory was formerly under the nominal suzerainty of the Manchu emperors of China. Soon after the beginning of the Chinese Revolution, in 1911, Outer Mongolia, which later became the Mongolian Republic, emerged as an autonomous state. Inner Mongolia (q.v., later to figure as the Japanese-controlled state of Meng Chiang, 1939–Aug. 1945), was reorganized into administrative districts and became more closely integrated with China.

The social organization of the Mongols, who are largely nomadic, particularly in the Gobi Desert region and its surrounding areas, has been similar to that of biblical times. Families are united into tribes, called "hoshuns." The hoshuns, and the leagues into which they are formed are largely controlled by the nobles, who claim direct descent from Genghis Khan, Tamerlane, or other celebrated Mongol rulers. The prevailing religion is Buddhist Lamaism, the number and political influence of its monks or lamas being much less than formerly. The Gobi Desert region was formerly an important trade transit area between China and the more westerly parts of central Asia, but trade was greatly reduced during the Sino-Japanese war. The leading occupation of the people is the raising of cattle, camels, sheep, and horses. It has been estimated that the plains of Mongolia, fully developed as a stock raising area, could support 25,000,000 horses, 12,000,000 camels, and 75,000,000 sheep, enabling its people, particularly through their production of mutton, hides, hair, and wool, to take a significant share in supplying the world's needs.

MONGOLIAN REPUBLIC (OUTER MONGOLIA). A republic of central Asia, bounded on the north by Siberia and Tannu Tuva, on the east by Manchuria (Manchukuo), on the south by Meng Chiang (Inner Mongolia), (qq.v.) and on the west by Sinkiang. It has an area of about 622,744 square miles, the southeastern portion lying in the Gobi Desert, and a population estimated roughly in 1943 at 676,000, nearly 580,000 of whom are Mongols. Tannu Tuva, once a part politically of Outer Mongolia, is now an autonomous region of the Russian Soviet Federated Socialist Republic, an integral part of the Soviet Union.

Outer Mongolia had been under nominal Chinese suzerainty. In 1921 the Outer Mongolian People's Republic was set up by the Northern Mongols, and in 1924 was reconstituted on the Soviet model. Between 1936 and August 1945 its independence was guaranteed by the Soviet Union through a mutual assistance pact. According to a provision of the Sino-Soviet treaty of Aug. 14, 1945, full recognition of Outer Mongolian independence was also to be accorded by China (as well as by the Soviet Union) if the people of the country expressed the desire for this in a plebiscite. The plebiscite, which was reported on October 22, resulted in an almost unanimous vote in favor of such independence. Government powers are vested in a parliament (the Great Huruldan), elected by universal suffrage, from which an executive committee of 30 members (the Little Huruldan) is chosen, which is responsible to the popularly elected body. Five members of the executive committee are elected as a board to carry on state affairs. The chief towns are Ulan Bator Khoto (Urga), the capital

(population est. 1941, 100,000), Altan Bulak (Maimachen 20,000, in 1939), Uliassutai, and Kobdo.

The prevailing religion, Buddhist Lamaism, at one time drew about a third of the male population into its religious orders, but its influence has since been greatly reduced. The Mongol Republic is nearly as large as the United States east of the Mississippi and Ohio rivers, but its population is less than that of Baltimore. All lands, forests, minerals, and marine products are collectively owned. Farmers are being settled on the land, with material and technical assistance. A large proportion of the population, however, are still herdsmen, largely nomadic, sheep constituting perhaps 50 per cent of the estimated total of 25,000,000 livestock animals, but there are large numbers of cattle, goats, horses, and camels. Hides and wool, sent out mainly through the Soviet Union, were the leading prewar exports, which reached an annual value, equivalent to about $12,500,000 in American money, imports amounting to nearly the same sum. Industries, chiefly shoe factories, tanneries, and woolen mills, are mainly confined to Ulan Bator, the capital, which, with its government agencies, schools, newspapers, and expanding communication facilities, is described in a recent number of the *National Geographic News Bulletin* (April 7, 1944) as "the heart of this Asiatic heartland." See also MONGOLIA.

MONTANA. Mountain state, United States; admitted to the Union Nov. 8, 1889. Population (1940): rural, 347,921; urban, 211,535; total, 559,456. Land area, 146,316 square miles, divided into 56 counties. Chief cities, with 1940 populations; Butte, 37,081; Great Falls, 29,928; Billings, 23,261; Missoula, 18,449; Helena, the capital, 15,056; Anaconda, 11,004.

Chief State Officers, 1945.—Governor, Sam C. Ford; lieutenant governor, Ernest T. Eaton; secretary of state, Sam W. Mitchell; treasurer, George T. Porter; attorney general, R. V. Bottomly.

Judiciary.—Chief justice of the Montana Supreme Court, Howard A. Johnson; associate justices, Albert H. Angstman, Claude F. Morris, Hugh R. Adair, E. K. Cheadle.

Legislature.—The Legislative Assembly (Senate, 56 members; House of Representatives, 90) convenes biennially on the first Monday in January.

Education.—Public elementary rural schools (one- and two-room) in 1944–45, 1,214; teachers, 1,309; pupils, 12,778. Public elementary urban schools (including 6 kindergartens), 326; teachers, 2,098; pupils, 53,819; average yearly salary of all elementary school teachers, $1,474. Public high schools, 190; teachers, 1,307; students, 24,605; average yearly salary of high school teachers, $1,697. Education in Montana is compulsory for all children between the ages of 8 and 16, inclusive. There are two state teacher training schools. Total state appropriation for education (1945), $3,030,945.08. State superintendent of public instruction, Miss Elizabeth Ireland.

Finances.—The following figures covering Montana's finances for the fiscal year 1944–45 were supplied by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$28,478,094.20
Receipts, 1944–45	32,027,216.28
Total	$60,505,310.48
Disbursements, 1944–45	26,947,469.65
Balance, beginning of fiscal year 1945–46	$33,557,840.83
Investment balance, July 1, 1945	$23,667,254.86

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	2,265	3,308	1,918
Oats (1,000 bu.)	10,362	15,717	11,938
Wheat (1,000 bu.)	47,572	73,884	60,858
Barley (1,000 bu.)	5,537	16,290	14,925
Rye (1,000 bu.)	453	378	300
Flaxseed (1,000 bu.)	942	1,453	1,232
Sugar beets (1,000 short tons)	820	682	943
Peas, dry field (1,000 bags)	329	456	336
Hay:			
Alfalfa (1,000 tons)	975	1,159	1,183
Clover and timothy (1,000 tons)	242	299	325
Tame (1,000 tons)	1,571	1,817	1,828
Wild (1,000 tons)	524	616	616
Beans, dry edible (1,000 bags)	274	240	212
Potatoes (1,000 bu.)	1,700	2,520	2,520
Apples (1,000 bu.)	325	400	290
Cherries (tons)	333	1,080	880

MONTGOMERY, Sir Bernard Law, British Army officer: b. Donegal, Ireland, Nov. 16, 1887. Commander of all Allied ground forces for the initial phases of the invasion of Europe, and later chief of the Twenty-first Army Group, Field Marshal Montgomery is one of the most colorful figures to emerge from the Second World War. He went to France with the BEF in 1939 as a division commander, and in May–June 1940, helped effect the British evacuation at Dunkerque. In December 1941, he became commanding general, South Eastern Command, vital post in the British Army's ring of steel against possible German invasion. In mid-August 1942, he succeeded Lieut. Gen. Neil M. Ritchie as commander of the Army of the Nile, the British Eighth. The Eighth's pursuit of Rommel's Afrika Korps across 1,750 miles of Africa from the gates of Alexandria, Egypt, to victory in Tunisia is already legend. Montgomery later took part in the brief Sicilian campaign, and on Sept. 3, 1943, landed his forces on the Italian mainland. He became ground force commander under General Eisenhower in December 1943 for the invasion of the European continent from the west, and in August 1944, chief of the Twenty-first Army Group. On Sept. 1, 1944, he was designated field marshal. On May 4, 1945, he accepted the surrender of all German forces in the Netherlands, northwest Germany, Denmark, Helgoland, and the Frisian Islands, and on May 22, was appointed chief of British occupation forces and British member of the Allied Control Commission in Germany. Montgomery received Russia's highest award, the jeweled Order of Victory, on June 10, and the following day, was presented with the Distinguished Service Medal by General Eisenhower.

Montgomery was knighted by King George in November 1942 for his achievements in North Africa, and was created viscount on Jan. 1, 1946.

MONTSERRAT. See LEEWARD ISLANDS (B.W.I.).

MOOREA ISLAND. See FRENCH OCEANIA.

MORAVIA. See CZECHOSLOVAKIA.

MORAVIAN CHURCH. Its real name is "Church of the United Brethren in the United States of America." It is the largest of a number of groups which trace their spiritual ancestry back to the "reformer before the Reformation," John Hus of Bohemia, who died at the stake in 1415. This

church is an integral part of the Unitas Fratrum, a genuinely international organization. It holds all the Protestant doctrines as found in the Bible; specializes on evangelism, education and foreign missions. In America there were in 1945, 113 pastors, 145 congregations, with a membership of 40,674. At that time the world statistics were 601 congregations and a membership of 265,463. Of these, 337 were foreign mission congregations, having a membership of 175,874. These figures are inaccurate only in cases where war conditions made it impossible to obtain reports. The average contribution per member in the United States for home support and benevolence combined amounted to $26.34. In 1945 plans were in preparation for a world conference of Moravians early in 1946 either in England or in the United States. In Germany the church suffered serious property loss by war. Most of the congregations are in the area controlled by Russia.

S. H. GAPP,
President, Moravian Church in America.

MORGAN, Thomas Hunt, American zoologist: b. Lexington, Ky., Sept. 25, 1866; d. Pasadena, Calif., Dec. 4, 1945. Dr. Morgan received his B.S. and M.S. degrees from the State College of Kentucky in 1886 and 1888 respectively, and his Ph.D. degree from Johns Hopkins University in 1890. He served as professor of biology at Bryn Mawr College from 1891 to 1904, and as professor of experimental zoology at Columbia University from 1904 to 1928, when he became professor of biology and director of the William G. Kerckhoff Laboratories of Biological Sciences of the California Institute of Technology. In 1933 he was awarded the Nobel Prize in medicine for his discoveries concerning the laws and mechanism of heredity.

Without Dr. Morgan's conception of the gene and his now confirmed theory of the way genes cross over in the egg from one parent to the other, there would hardly be a science of genetics. Most of his researches were conducted with fruit flies, which reproduce rapidly. He studied hundreds of pure fruit-fly strains and eventually, with much mathematical work, arrived at his theory of gene linkages and threw much light on the way chromosomes, in which genes are contained, are divided between parents and reunited in offspring. Dr. Morgan reduced the problem of heredity to one of physics and chemistry, the gene being an organic compound which has the miraculous property of determining the form, size, and properties of any living organism. Dr. Morgan was president of the National Academy of Science from 1927 to 1931, and president of the International Congress of Genetics in 1932. He was the author of *Regeneration* (1901); *Mechanism of Mendelian Heredity* (1915); *Embryology and Genetics* (1933), and other books.

MORMONS (THE CHURCH OF JESUS CHRIST OF LATTER DAY SAINTS). Elders Rufus K. Hardy and Samuel O. Bennion, members of the First Council of the Seventy, died on March 7 and 8, 1945, respectively. On April 6, at the semi-annual conference of the church, Elders S. Dilworth Young and Milton R. Hunter were called to fill the vacancies in this council.

Heber J. Grant, president of the church since Nov. 23, 1918, died in his 89th year on May 14, 1945. During his long administration of church affairs, President Grant saw the church membership increase from 479,648 to 954,004; the stakes from 79 to 149; the wards and independent branches from 871 to 1,273; the missions from 24 to 39. He dedicated three of the seven existing temples of the church. Hundreds of meetinghouses were built under his direction. The 27 years of his administration were a period of steady growth and development. President Grant also held the longest record of service among the general authorities of the church (63 years), having been called to the apostleship in 1882.

George Albert Smith, the senior apostle, was called to the presidency of the church on May 21, 1945, by the Council of the Twelve Apostles. He chose as his counselors, J. Reuben Clark, Jr. and David O. McKay. The new president was born April 4, 1870, in Salt Lake City. He was called to the apostleship on Oct. 6, 1903, at the age of 33, and has served continuously since that time. His father, grandfather, and great grandfather have been general authorities of the church. President Smith is in temperament kind, generous, and understanding, a lover of mankind, a forceful speaker and defender of his faith. He has had large experience in a great variety of human relations; as a member of the national guard; national officer of the Sons of the American Revolution, and the Boy Scout movement (from which he has received the Silver Beaver and Buffalo awards); a chief promoter of the Pioneer Trails and Landmarks Association, which has built monuments to commemorate historic trails and events in the building of western United States. President Smith is well educated, a world traveler, and known to a host of men, the world over. All of these varied interests converge upon his work in behalf of the church. The people are grateful for his appointment.

Elder George F. Richards, who became the senior apostle upon President Smith's assumption of the presidency, became president of the Council of the Twelve Apostles on May 21, 1945. Elder Richards has served as an apostle since 1906.

On October 5, at the general October conference, Elder Matthew Cowley was called from his law practice to fill the vacancy in the Council of the Twelve. Elder Cowley had been a long time missionary for the church in New Zealand.

With the ending of the war, the historic tabernacle on Temple Square in Salt Lake City was again opened to the public. The October 1945 conference of the church (during the war years conferences were open only to a limited number of priesthood bearers) was the most largely attended conference of the church.

The eighth standing temple of the church, a beautiful building constructed at a cost of about $1,000,000 in Idaho Falls, Idaho, was dedicated, with an attendance of nearly 24,000, on Sept. 23–25, 1945. Before the dedication, the temple was thrown open to the public and visited by tens of thousands of people.

JOHN A. WIDTSOE,
Church of Jesus Christ of Latter Day Saints, Salt Lake City, Utah.

MOROCCO. A sultanate of northwest Africa, bounded on the north by the Mediterranean, east by Algeria, south by the Sahara and Rio de Oro (Spanish Sahara), and northwest by the Atlantic. The sultanate has an area of 172,922 square miles, and a population of about 9,029,000. The sultan (Sidi Mohammed ben Youssef proclaimed Nov. 18, 1927) is nominally an absolute monarch; in practice, however, his authority is restricted to administration of native justice and responsibility for Moslem religious affairs. In other

respects, three different systems of government prevail, the country having been divided into a French Zone, a Spanish Zone, and an international Tangier Zone by a series of treaties beginning in 1912. Paramount power is exercised by the French, whose resident general controls the foreign relationships of the sultanate, the capital of which is at Rabat. The areas, populations and capitals of the three zones are as follows:

Zone	Area, sq. mi.	Population	Capital
French	153,870	7,991,000 (1941)	Rabat (171,600)
Spanish	18,827	937,684 (1936)	Tetuan (49,535)
Tangier	225	100,000 (1941)	Tangier (47,000)
Total	172,922	9,028,684	

French Zone

In international law, the French Zone of Morocco is a protectorate. While all legislation emanates nominally from the sultan, it is drafted by a French staff and promulgated by the resident general. The latter controls administrative services and is responsible for internal order and external defense. He is assisted by a Government Council, having French and native membership; French members comprise high officials, presidents of economic chambers, and 22 elected representatives; while the native members are nominated by the grand vizier, who exercises the functions of the sultan's prime minister. The resident general is responsible to the delegate general for North Africa (Gen. Georges Catroux became first incumbent of the office on Aug. 28, 1944).

The population of the French Zone at the 1941 (est.) census amounted to 7,991,000, comprising (1936) 5,874,888 native Moslems, 161,312 native Jews, 173,533 French, and 59,058 other whites; the majority of the Moslems are of the Sunnite sect. Casablanca (pop., 1941 est., 453,000), a seaport, is the largest city, and Rabat (171,600) is the capital; other cities include Meknes (109,500) and Oudjda (65,000).

Education.—Little has been done to educate native Moroccans, the majority of whom are illiterate. Koranic schools, and higher schools affiliated with mosques, provided a curriculum that was mainly religious in character; prior to the outbreak of the war, however, some 25,000 native boys and girls were being educated on modern French lines. White children also attended modern schools (about 42,000 pupils in 1939), standards being equal to those obtaining in France. Schools for native Jews were conducted jointly by the protectorate government and the Alliance Israelite.

Agriculture and Livestock.—The most important industry is agriculture, particularly the cultivation of cereals. Hard wheat is grown on a considerable scale on the western plateaus and plains, and soft wheat in the Maghreb, while barley is the principal crop in the southern parts of the country. Peas, beans, and other legumes are grown widely, and other crops include canaryseed, cumin, and linseed. Both natives and whites cultivate vineyards; the argan tree, unique to southwestern Morocco, yields an oil which supplements the relatively small output from Moroccan olive trees. The dates of Morocco are much inferior to those produced in neighboring Algeria; citrus fruits do well, however, particularly oranges, and other fruits include the almond, apricot, fig, and walnut. Nearly 60,000 metric tons of citrus fruits were raised in the 1944–45 season, approximately 10,000 tons more than in the preceding year. Truck gardening for export is carried on in the vicinity of Casablanca, Rabat, and Mazagan. During 1944, 13,057,429 sheep were raised in French Morocco, as compared with 12,870,472 in the preceding year, and about half that number of goats; there are also large numbers of cattle, hogs, horses, and camels.

Mining.—French Morocco ranks second among African producers of phosphates, the reserves amounting to about one billion tons. Approximately 1,500,000 metric tons of phosphate rock were mined in 1944. The country ranks third in cobalt production; large iron ore deposits (50–60 million tons) have been exploited to a limited extent, and the same condition exists with respect to coal beds. The total coal output for the first quarter of 1945 was estimated at 47,800 metric tons. Other minerals include manganese, molybdenum, silver, lead, zinc, nickel, antimony, and graphite. Bauxite deposits have been reported in the Atlas Mountains. Copper production is negligible. Petroleum is being extracted on a small scale at Souk el Arba, in the vicinity of Taza, in the Rif district. The limestone formations are utilized in the production of cement, and deposits of rock salt are also worked.

Industry.—Shipping difficulties during the war were an aid to several local industries, particularly the manufacture of clothing and boots and shoes. While the canning of fish declined, that of fruits and vegetables increased; and the dehydration of fruits and vegetables was introduced in 1942. Construction of cold storage depots was scheduled in 1945. Soap-making has been hampered by a lack of raw materials. Native industries include the manufacture of carpets and leather goods. In 1944 the output of electric power amounted to 214,000,000 kilowatt hours, as compared with 190,000,000 in 1943.

Finance.—Revenue was estimated for the French Zone for 1944 at 2,604,982,000 francs, and expenditure at 2,604,658,000 francs.

External Trade.—First place among exports is normally occupied by phosphates, and the second by wool. Exports of phosphate rock increased from 892,000 metric tons in 1943 to 1,371,300 metric tons in 1944. Salted and canned fish, such products of native handicraft as leather goods and slippers, and numerous minerals, are other exports of importance. Machinery and motor vehicles are imported, as well as petroleum products, textiles, and basic foods produced in Morocco in insufficient quantities.

Communications.—Government-owned railroads (1,150 miles) operate from Tangier to Fez, and thence to the Algerian frontier, with branch lines serving all important centers. Highways (4,842 miles) are generally in good condition for automobile traffic, and the country is well equipped with wire and wireless telegraphic and telephone facilities.

Spanish Zone

Spanish Morocco comprises two protectorates and other areas:

Territory	Area, sq. mi.	Population
Protectorate of the Southern Zone	10,039	5,000
Protectorate of the Northern Zone	7,970	795,000
Ifni[1]	741	905[2]
Settlements: Alhucemas, Ceuta, Chafarinas, Melilla, Penon de Velez	77	136,779
	18,827	937,684

[1] Administered from Cabo Yubi, capital of Rio de Oro (Spanish Sahara).
[2] White population only.

The powers of the sultan in Spanish Morocco are delegated to a khalifa (deputy), whose administrative acts are controlled by a Spanish high commissioner (Lieut. Gen. José Varela appointed March 4, 1945). Besides Tetuan, the capital (pop., 1936, 49,535), the principal towns are Alcazar (30,762), Larache (29,477), and Xauen (6,065). The government conducts a number of schools, including special institutions for natives where instruction is in both Moorish-Arabic and Spanish. Farming is left almost entirely to natives (unlike the case in French Morocco), and is in a backward condition; there are some 320,000 olive trees, and numerous livestock, but arable farming has made little headway. The country is rich in metalliferous ores, notably in deposits of magnetite and hematite iron ore in the Rif at Uixan, 12 miles south of Melilla, where there are reserves of 80 million tons; there are lesser reserves of antimony, lead, and manganese likewise mined on a limited scale. Besides minerals, skins, cork, vegetable fiber, cattle, and eggs are exported; the principal imports are textiles, automobiles, petroleum products, and foodstuffs. There is a fair highway system extending over 1,400 miles; and the territory is traversed for a distance of 72 miles by the railroad from Tangier to French Morocco.

Tangier Zone

By a statute which came into effect June 1, 1925, Tangier, permanently neutralized and demilitarized, became an international zone administered by Spain, France and Great Britain; by an agreement signed July 25, 1928, Italy adhered to the terms of the statute. In 1940, following the surrender of France, Spain abolished the international administration, despite protests on the part of Britain and the United States, native troops entering the city from Spanish Morocco on June 14; the Committee of Control and the Legislative Assembly were abolished on November 3; and on May 4, 1941, Spaniards took over the customs service. Meanwhile, on March 16, 1941, the mendoub, the sultan's representative in Tangier, was ejected by the Spaniards, who installed Khalifa Sidi Muley Hassan ben el Mehedi in his stead. Discussions by representatives of the United States, Great Britain and France to determine the postwar status of Tangier, scheduled to begin on July 3, 1945 were postponed when, on the eve of the conference, the Soviet Union asked to participate; and on August 10, delegates from all four nations began conferring. On September 5 it was reported that, as a result of the conference, the Spanish government had been ordered to evacuate Tangier, and that the Sovereignty of the Sultan of Morocco would be reestablished over the zone. Normally, schools for white children are operated by both the French and Spanish authorities; natives attend Koranic elementary schools; and the Jewish community maintain separate schools for native Jews. Locally-produced foodstuffs are supplemented by imported produce for the relatively large population. The tangerine, a type of orange, was named for Tangier, through which port much of the fruit was formerly exported to Europe. Within the zone are fisheries and a number of preserving factories. There are some 65 miles of roads. Great Britain operates the only foreign (non-French or non-Spanish) postal service in Morocco; the head office is at Tangier, and a branch at Tetuan.

MORRISON, Herbert Stanley, British politician: b. Brixton, London, Eng., Jan. 3, 1888. On July 27, 1945, Mr. Morrison was named lord president of the council and leader of the House of Commons, after labour's sweeping victory in Britain's first general election since 1935. One of the three Labourites in Winston Churchill's war Cabinet, he served as minister of supply from May 12–Oct. 6, 1940. He was then appointed home secretary and minister of home security, and in that capacity, organized Great Britain's civil defense system and her national fire service. In 1942, he was chosen a member of the war Cabinet. As head of the London County Council, of which he had been a member since 1922, he was responsible for the expert evacuation of London school children at the outbreak of the Second World War. Mr. Morrison entered British politics in 1913, first as a newspaperman, later as secretary of the London Labour Party (1915–40). He was Labour Party chairman, 1928–29, and minister of transport, 1929–31. He is author of *Socialisation and Transport* (1923), *How Greater London Is Governed* (1935), *Looking Ahead* (1943), *Prospects and Policies* (1944), *Science and Administration In Modern Government* (a collection of lectures, 1944).

MOTION PICTURES. In 1945, the year of cessation of hostilities in the Second World War, a year marked by changes and unrest in social and labor conditions, the production of motion pictures reflected the unsettled times. This was seen not so much in the subject matter of films themselves as in the circumstances surrounding production. Fewer films were made and released than during the war years. Studios gave as reasons for the postponement of many large-budget pictures: wartime shortages of materials and government restrictions. It became apparent, however, after August when most of the restrictions were lifted at the close of the war with Japan, that a more important cause for the delayed schedules was the labor dispute in connection with set construction. The argument, which was brewing for some time previously, came to the open in March when two A.F. of L. affiliates (Conference of Studio Unions and International Alliance of Theatrical Stage Employees) claimed jurisdiction over 77 set designers who were striking. By October, this affair, which had seemed only a minor tempest at first, grew to large proportions, involved most of the principal motion picture companies and some 7,000 film workers. Production on many films was slowed up and in a few studios was stopped entirely. Although most of the companies had a backlog of completed films ready for release, it was predicted that the results of this labor dispute, which was finally settled, would be felt well into 1946.

Few events of the year caused so much widespread uncertainty or disturbance in Hollywood as the labor difficulties, although other more important situations arose. A large number of actors and technicians who had served in the armed forces returned and resumed their former positions. Warner Brothers and United Artists, for reasons never publicized, resigned from The Motion Picture Producers and Distributors of America, Inc., better known as the Hays Office—a title which may soon pass out of use, for in September Will H. Hays, himself, resigned as its head. Mr. Hays had held this position as "czar" of the movie industry since 1922 when the office was founded by the motion picture companies. As his successor, Eric A. Johnston, president of the Chamber of Commerce of the United States,

was appointed. While it was not expected that Mr. Johnston would make radical changes in the much-discussed Production Code that lay down the ethical law for films, it was hoped he would enforce its rules with greater flexibility. Among the many problems, beside the strike and jurisdictional fight over the set designers, confronting Mr. Johnston when he assumed office were such major concerns as: the resumption of foreign trade after the war (from 30 to 40 per cent of the profits on each film usually came from abroad); the complaint from English producers, led by Arthur J. Rank, that English films did not get favorable distribution and playing dates in the United States; and the re-opening in October of the government's anti-trust suit against the major producing-distributing companies. This case, started in 1938 to divorce producer-distributors from their theater holdings, and to stop block booking and blind selling, resulted in 1940 in a consent decree which provided for the selling of pictures in groups of not more than five with the exhibitor having the right to see the films he bought. However, neither the government nor the independent theater owners were satisfied with the working of the decree during the past years. The defendant companies in the suit were Paramount, Loew's, Inc. (M-G-M), Warner Brothers, Twentieth Century-Fox, Radio-Keith-Orpheum Corp. (RKO), and United Artists, Universal and Columbia—the last three did not own theaters and were in a special group because they did not sign the original decree.

During most of 1945, money flowed as freely as in the war years, and the public was willing to pay well for motion picture entertainment. In majority of cases it was an unusually poor picture that did not show a profit; while the better pictures (most of which were made on larger budgets than ever before) ran for long playing engagements in the big houses. These prolonged engagements were due to the efforts of the industry to get all the returns possible out of each film since there were fewer releases, and to the eagerness of pleasure-seeking movie-goers.

It was no surprise that the popularity of comedies and escapist pictures increased while pictures with war themes were losing appeal. Even in 1944 Hollywood saw the beginning of the public's reaction against war films and the production of this type of movie fell into decline. There were notable exceptions: films that were started before the reaction set in and films based on popular books which could be expected to attract audiences. Best of these was Ernie Pyle's *The Story of G.I. Joe*, produced by Lester Cowan, directed by William A. Wellman, based on the famous correspondent's writings. While depicting details of the African and Italian campaigns, this realistic film portrayed the work and fighting of infantry soldiers and forcefully emphasized the tragic waste of war. Another outstanding example was *They Were Expendable*, expertly directed by Capt. John Ford, based on William L. White's book praising the work of P-T boats in the Pacific and their courageous crews.

As might be expected, because of timeliness, phases of the war against Japan were used as subject matter more often than the European front. *God Is My Co-Pilot* celebrated Gen. Chennault's fliers in China. *Back to Bataan* honored the Filipino and American guerrillas who fought so bravely against the Japanese. *Objective Burma*, realistically acted by an all-male cast, was about a group of Americans on a special mission in a Jap-infested jungle. (The extraordinary thing about this movie, highly praised in the United States, was the storm of protest it received in England because it said nothing about the British campaign in Burma. So excited were the English about this unintentional neglect, that Warners set a precedent by withdrawing the film from London theaters.) *China Sky* was more concerned with a cheap love story than with our allies in the Pacific. *Blood on the Sun*, laid in Tokyo in 1928, told a tale steeped in intrigue and spying when Baron Tanaka was premier of Japan.

Naturally there were other spy-and-chase movies. *Ministry of Fear* failed to catch the subtle implications of Graham Greene's novel but provided thrills in its story about a Londoner tracking down spies. *Paris—Underground*, unfortunately for its producer, actress Constance Bennett, came out so late in the year that its plot about smuggling fliers out of Occupied France seemed outdated. After V-E and V-J days, the studios tried to make their espionage stories more timely through references to the atomic bomb or by giving them a now-it-can-be-told angle. *First Yank into Tokyo* ended with shots of bombs being dropped on Hiroshima and Nagasaki. The most successful of the spy films was *The House on 92nd Street*, which producer Louis de Rochemont gave the tone of a documentary film portraying the work of the F.B.I. in preventing sabotage.

It was in the real documentaries that one saw the best and most vivid sequences of the war. The five newsreel companies, which were supplied the same war footage by a common pool, varied their presentations through individual editing, sound tracks and commentaries. These newsreels, released twice a week, also covered postwar items and other national events and interests. The *March of Time* and *This Is America* series continued their two-reel semi-documentary reports on a wide variety of timely subjects. But it was the straight documentaries that won the acclaim of critics and public. Shorts like *To the Shores of Iwo Jima*, showing the marines in action, and *Orders from Tokyo*, showing the carnage and atrocities perpetrated by the Japanese in the Philippines, and longer films like *The Fighting Lady* (photographed under the direction of Capt. Edward Steichen, produced by Louis de Rochemont), showing life, work and death aboard an aircraft carrier, and *The Battle of San Pietro* (written and directed by Maj. John Huston), recording the infantry's bitter battle for an Italian town, were made by the government and released through the film companies' regular distributing channels. These strong, realistic documentary films kept reminding the public how much was owed to our armed forces. Perhaps the greatest film of this group, certainly the most widely publicized and praised was *The True Glory*, made by the Anglo-American Film Planning Committee under the supervision of American (Capt. Garson Kanin) and British (Carol Reed) directors. It reported the Allies' western invasion of Europe from D-day to the fall of Germany and stressed that the teamwork, so important in winning the war, must continue while victory was put to the test of peace. The first-rate visuals, taken mainly by combat cameramen, and the explanatory maps were accompanied by an excellent commentary which was made even more striking through being narrated by many individuals, thus giving the effect of participants making observations on the war. This device strengthened the teamwork and democracy themes.

Hollywood also made war-related films that looked behind combat scenes for fundamental drama with political and ideological themes. *Hotel Berlin,* strategically released in March, was a melodrama about confusion among the leaders and little people of Germany as the war drew to a close. *Counter-Attack* showed two Russians trapped with eight Germans in a cellar and dramatically contrasted the war purposes of these enemies. *Over 21,* a comedy about a newspaper editor at Officer Candidate School, included one-world propaganda in its story. The evils of nazism were forcefully presented in *Tomorrow, the World,* which showed a German boy trying to destroy the American family who adopted him. The advantages of democratic over Fascist government were repeatedly pointed out in *A Bell for Adano.* This popular film, derived from John Hersey's novel about an Italian town after the American Army took control, showed its hero failing as a soldier because of military red tape but succeeding as a man and democrat.

A subject that interested all Americans and in which Hollywood was well prepared was that of soldiers on leave and, even more important, fighters' return to civilian life. Even in 1944 Hollywood started this cycle, and in 1945 many versions were filmed. *Those Endearing Young Charms* distorted the moral issues with a silly love story. *You Came Along* was overly theatrical in its laughter-through-tears plot about a doomed hero and the girl who loved him. *The Clock,* with Judy Garland and Robert Walker, revealed a simple, charming tale about a soldier and the girl he met and married in New York. In *A Medal for Benny,* the title character never appeared, but his father had sharp things to say about Americans commercializing war heroes. *The Enchanted Cottage* sentimentally retold Pinero's story about the disfigured flier and the homely girl who through love became beautiful in each other's eyes. More realistic, but marred by the sensational past in the girl's life, was *I'll Be Seeing You,* which again portrayed the therapeutic potency of love—this time for a psychoneurotic soldier and a girl on furlough from prison. Best of 1945's returning-soldier films (although at the year's end many were still in preparation) was *Pride of the Marines* which told with documentary-like realism the true story of Al Schmid, who was awarded the Navy Cross for heroism at Guadalcanal where he lost his eyesight. This was not so much a combat movie as it was a picture of homecoming and rehabilitation for the embittered blind man exceedingly well portrayed by John Garfield. This fine biographical film, with moving scenes like the one in which wounded men discuss their future, their fears of facing life and the apathetic home front, was highly praised for confronting issues honestly and bravely.

Hollywood frequently turned to biography in 1945, no doubt because in telling stories of colorful figures from the past, the movies could avoid reference to the troubled present. *Captain Eddie* was an exception, but even in this life of Rickenbacker, most footage was devoted to his youth; the famous flier's labor pronouncements were not mentioned. *Dillinger,* a powerful and popular picture about the infamous man, created a controversy as to whether Hollywood was starting a new cycle of gangster films, a subject looked upon with apprehension by those concerned with post-war delinquency. However, most of the biographical pictures side-stepped controversial issues. *Captain Kidd,* with Charles Laughton, satirized the pirate. *A Royal Scandal,* with Tallulah Bankhead, laughed at a romantic incident in the life of Catherine the Great. *The Great John L.* told the story of the hard-drinking, hard-fighting Sullivan. Notable for their excellent musical scores were *A Song to Remember,* which distorted the Chopin-Sand affair, and *Rhapsody in Blue,* which vividly visualized and interpreted incidents in the life of George Gershwin. *Incendiary Blonde,* with Betty Hutton portraying Texas Guinan, and *The Dolly Sisters* were really musical comedies that decorated their semi-biographical plots with songs of the period and glittering Technicolor.

As in other recent years, 1945 saw many musical comedies. Some celebrated well-known places of entertainment: *Diamond Horseshoe* and *The Stork Club;* some pictured backstage life; *George White's Scandals* and *Tonight and Every Night. Yolanda and the Thief,* starring Fred Astaire, was a pleasant adult fantasy. Several of the musicals put their stars in uniform: *Here Come the Waves* and *Anchors Aweigh.* The latter, a brilliant comedy with Frank Sinatra and Gene Kelly, was tremendously popular; in one of its most charming sequences Mr. Kelly danced with animated cartoon figures. This device was also used by Walt Disney in his feature-length picture, *The Three Caballeros;* while the Disney film was praised for its spectacular effects and technical innovations, it was also criticized for lack of good taste.

Some of the most popular romances used musical scenes as added attractions to glamorous stories: *Thrill of a Romance, Music for Millions, Week-End at the Waldorf.* The latter had a large star-studded cast including Ginger Rogers, Walter Pidgeon, Lana Turner, Van Johnson. Some of the romantic comedies came to the screen without benefit of added musical sequences: *Men in Her Diary, Her Highness and the Bellboy, Guest Wife, The Affairs of Susan, Christmas in Connecticut.* Many of the year's most hilarious comedies used not only musical scenes but also stories that were specially written to suit the personalities of their players: *It's in the Bag* (with Fred Allen), *Here Come the Co-eds* (Abbott and Costello), *The Horn Blows at Midnight* (Jack Benny), *Duffy's Tavern* (Ed Gardner as Archie), *Wonder Man* (Danny Kaye). There was a tendency in this last group of films, and in others like *Where Do We Go from Here?, Along Came Jones, Out of This World,* to parody other movies, well-known stars and cinematic clichés. Hollywood's burlesquing itself provided an indication of good health and approaching maturity. None of these comedies and romances was likely to make movie history, but one of them, *Brewster's Millions,* would certainly be mentioned in footnotes on race prejudice. The film itself was no work of art, but it created comment when it was banned in Memphis because one of its characters was a Negro who, according to that city's censor board, "has too familiar a way about him and the picture presents too much social equality."

That statement, made in the enlightened year of 1945, would be excuse enough for business-minded film producers to concentrate on profitable escapist pictures. Costume melodramas were expensive to make, but they won audiences and showed their value at the box office if no where else. *Sudan, The Fighting Guardsman, Salome—Where She Danced, Nob Hill, Kitty, A Thousand and One Nights, The Spanish Main* were examples. Most of these and many of the musical comedies and romances were in Technicolor

which enhanced their beauty and increased their already high expenses 25 per cent. A total of 35 feature films were produced in Technicolor during the year; and a larger number of shorts, including travelogues and animated cartoons, were made in this process. (Most of the year's output of shorts, totaling well above 400, were without color and covered the usual trite subjects. Unusual material was found in the war shorts, the semi-documentaries and such planned propaganda pieces as *The House I Live In*, in which the teen-agers' favorite, Frank Sinatra, made an effective plea for racial and religious tolerance.)

Animal movies in color like *Thunderhead, Son of Flicka* and *Son of Lassie* continued to prove popular. *The Enchanted Forest* included wild animals in its simple, moving story about nature's power in curing psychological ills. While there were a large number of minor "westerns" (Roy Rogers was still King of the Cowboys), there were few big productions released with "horse opera" themes. There was indicated, however, the beginning of a farm cycle with *The Southerner, Our Vines Have Tender Grapes* and *State Fair*, the first two being realistic, the latter being a likeable comedy with gay music by Richard Rodgers and Oscar Hammerstein II.

These pictures of farm life would no doubt provide useful subjects for the Office of War Information (OWI) and army psychological warfare bureaus; for, while many of the government war-related departments disbanded after August and government film production was cut down, these agencies continued to function. One of their jobs was the taking over of theaters in former enemy-occupied countries, particularly Germany and Japan, to inform the people through factual and entertainment films about the American way of living and about various phases of the war.

Americans also had opportunity to become informed through foreign films. There were importations from Mexico, Sweden, France, but the largest number came from England and Russia. From Switzerland came two brilliant anti-war films: *The Last Chance* and *Marie Louise*. English producers doubtlessly had some right to complain about the scant distribution their films got in the United States. The distributors answered that English films lacked favor here because of their slow pace and unfamiliar stars, but it became obvious as the discussions went on that English movies would get better treatment in this country. Imports that compared favorably with Hollywood products included such war films as: *The Way Ahead, Mr. Emmanuel, The Silver Fleet, Colonel Blimp* and such sophisticated comedies as *On Approval* and *Blithe Spirit*. Movies from Russia, while technically good, were labored with propaganda. *Girl No. 217, The Last Hill, Zoya, Moscow Skies* were among those which appealed to special audiences. *The Fall of Berlin*, an excellent documentary with commentary in English, won great attention and increased American respect for the victorious Soviet armies.

But few foreign films seriously competed with Hollywood movies, most of which attracted audiences through their stars. (In the United States the five top favorite women and men listed alphabetically were: Ingrid Bergman, Bette Davis, Judy Garland, Greer Garson, and Betty Grable; Gary Cooper, Bing Crosby, Cary Grant, Bob Hope and Spencer Tracy.) Producer-director Leo McCarey, whose *Going My Way* won the Oscar for the best film of 1944, followed that picture with a sequel. *The Bells of St. Mary's*, which starred two Oscar winners (Bing Crosby and Ingrid Bergman) and captivated audiences with its appealing story about a priest and a nun. Screen adaptations from plays like *Guest in the House, The Corn Is Green, Without Love, Junior Miss, Kiss and Tell* became even more popular as movies than they had been on the stage. One trend, well established in 1944, grew to great importance in 1945 and saw no signs of diminishing. This was the cycle of mystery, psychological-horror and crime-and-detection films made as expensive A productions by leading directors and with outstanding stars. Among the most popular of the many examples were: *The Suspect, Hangover Square, Murder, My Sweet!, And Then There Were None, Uncle Harry, Love Letters, Lady on a Train, Spellbound*. Many of these were based on plays and books, and the best of the lot were given added cinema values.

Other successful movies were based on popular novels like *The Valley of Decision* and *Mildred Pierce*. Oscar Wilde's moral fantasy, *The Picture of Dorian Gray*, was made into an artistic, sincere portrait of culture and corruption. Also adapted from novels were two of the year's best films, pictures which used cinema advantageously to portray life and represented Hollywood's highest standards in establishing movies as an art form. *A Tree Grows in Brooklyn*, produced by Louis D. Lighton, beautifully directed by Elia Kazan, acted by a fine cast, succeeded in capturing the glowing essence of hope that pervaded Betty Smith's book; for nostalgic audiences the film effectively visualized family relationships and childhood spent in city streets of several decades ago. *The Lost Weekend*, produced by Charles Brackett, directed by Billy Wilder, written by these two men from Charles R. Jackson's novel about an alcoholic, presented vividly and honestly the problems of a person seeking escape from life through drinking; the splendid cast led by Ray Milland gave memorable performances; and the picture won praise and expressions of gratitude for its straightforwardness in portraying its unfortunate hero as a person in ill health rather than a clown or criminal.

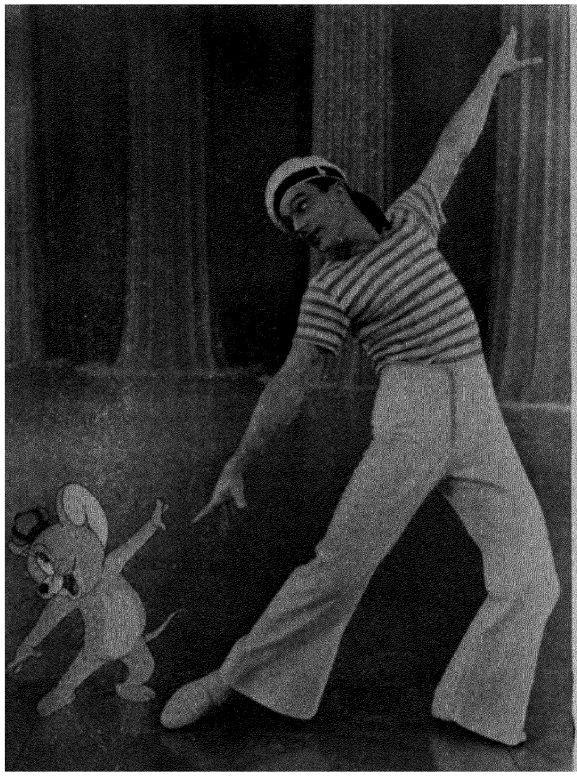
The Lost Week-end was voted best picture of the year by the New York Film Critics, it was announced on Jan. 1, 1946. Mr. Milland's work in this film won him first choice as the year's best actor, and Mr. Wilder's direction of this same picture was adjudged the year's finest directorial achievement. Ingrid Bergman was cited as the year's best actress by the critics for her work in RKO's *The Bells of St. Mary's* and in Alfred Hitchcock's *Spellbound*. Special awards were voted "to General Dwight D. Eisenhower and the motion picture units of the British and United States armies for the factual war film, *The True Glory*," and "to the United States Navy and Twentieth Century-Fox for the factual war film *The Fighting Lady*."

On Jan. 14, 1946, it was announced that 400 newspapers, magazines, wire services, and syndicates throughout the country, plus the film commentators of 81 radio stations, had voted Darryl V. Zanuck's *Wilson* the best picture of 1945. This poll, conducted by the magazine *The Film Daily*, cited *A Tree Grows in Brooklyn* and *Keys of the Kingdom* as second and third choices, respectively, in a list of the year's ten best pictures.

PHILIP T. HARTUNG,
Motion Picture Critic, The Commonweal.

MOTOR VEHICLES. See AUTOMOBILES; HIGHWAYS.

MOTION PICTURES



Courtesy Metro-Goldwyn-Mayer
Animated cartoon sequence in *Anchors Aweigh* with Gene Kelly.



Courtesy RKO Radio Pictures, Inc.
Bing Crosby and Ingrid Bergman in Rainbow Productions' RKO Radio release, *The Bells of St. Mary's*.



Ray Milland, Jane Wyman, and Philip Terry in *The Lost Weekend*.

MOUNTBATTEN, Lord **Louis (Francis Albert Victor Nicholas),** British naval officer: b. Frogmore House, Windsor, England, June 25, 1900. Lord Mountbatten was Allied commander in chief in Southeast Asia for the war against Japan. He was selected for that post at the first Roosevelt-Churchill meeting in Quebec in August 1943. The following month, he was promoted full admiral. In April 1944, he directed the Allied counteroffensive against the Japanese in India and Ceylon. He met with Generalissimo Chiang Kai-shek in March 1945 for a strategy conference. On May 4, he announced the end of the Burma campaign, and revealed its cost to the Japanese—347,000 casualties, 97,000 counted dead. He went to Manila in mid-July 1945 to confer with General MacArthur, and a few days later, met with Anglo-American-Soviet leaders in Berlin. He accepted the formal surrender on September 12 of all Japan's southern armies, including 85,000 troops in the Singapore area, and 500,000 soldiers and sailors in southeastern Asia and the East Indies.

MOZAMBIQUE. See Portuguese Colonial Empire.

MURDOCK, Victor, American newspaper editor and politician: b. Burlingame, Kans., March 18, 1871; d. Wichita, Kans., July 8, 1945. Editor in chief of the Wichita *Daily Eagle* since 1924, Victor Murdock was a member of the federal House of Representatives from 1903 to 1915. His brilliant editorials, both before he entered politics and after his public career began, helped make the *Daily Eagle* a newspaper of much influence.

Educated at public schools and at Lewis Academy in Wichita, Murdock worked for a time as a political reporter for a Chicago newspaper. When he was 23 years of age he became managing editor of the Wichita *Daily Eagle,* a position he held until 1903, when he was elected to Congress to fill a vacancy. Angered over the arbitrary rejection of his bill to save the government huge sums on railway mail contracts, Murdock in 1907 launched a three-year fight to restrict the powers which Speaker Joseph Cannon exercised over the House. He won the bitter battle at the expense of his railway mail provision, which was knocked out of the bill to which it had been attached as a rider. In 1912 he left the Republican Party for the Progressive or "Bull Moose" wing, and was elected to the House as a Progressive Republican that year. From 1917 to 1924 he served as a member of the Federal Trade Commission.

MUSCAT AND OMAN. See Arabia.

MUSEUM OF NATURAL HISTORY, American. See American Museum of Natural History.

MUSEUM OF THE AMERICAN INDIAN, HEYE FOUNDATION. Commencing early in the year, the museum gradually returned to its exhibit cases the several thousand unique and more valuable specimens which had been removed and stored in 1942. These reinstallations proceeded until all the pieces were again on display.

During June, July and August, field work was carried on at two adjacent sites in Hampden County, Massachusetts. Earlier excavations there (1937) produced several Indian burials. During 1945 a considerable amount of aboriginal pottery was found. This is now being classified for study purposes.

A catalogue of some of the museum's more important carved and inlaid bone, and stone artifacts from Southern California was published and distributed. A similar illustrated catalogue covering collections from Spiro Mound, Le Flore County, Oklahoma, was in preparation.

E. K. Burnett,
Museum of the American Indian, New York, N.Y.

MUSIC. The liberation of Europe was followed almost immediately by a revival of music activity. While the Germans were still launching buzz-bombs from Belgian soil, the opera house and the Philharmonic Orchestra of Brussels were giving opera and concerts, respectively. As soon as Holland was freed, the Concertgebouw Orchestra of Amsterdam received official permission to resume its activities. Its personnel was purged of collaborationists, and according to the Netherlands Information Bureau of New York, Willem Mengelberg, the internationally famous conductor of the orchestra in former years, was barred forever from conducting in Holland, by a ruling of the Dutch Honor Council for Music. In Milan the people started immediately to repair their historic opera house, La Scala. They had refused to do so during the reign of the Fascists and Nazis, even though the building was damaged by bombs in the spring of 1943. Arturo Toscanini has consented to return to Milan to conduct a number of performances at La Scala. The Salzburg festival, which had been discontinued since 1939, was resumed August 12. Five orchestral concerts were given by an organization called the Salzburg Philharmonic, conducted by Franz Prochaska, and there were six "Serenades" in the Reitschule and six performances of Mozart's opera, *Die Entführung aus dem Serail* in the Municipal Theater. Two American soldiers were among the conductors at Salzburg. In England music activity had increased during the war years, and as a result of the movement to decentralize the music life of the nation by encouraging major symphonies to travel, four British orchestras are now sponsored by the state—the London Symphony, London Philharmonic, Liverpool Philharmonic, and the Hallé Orchestra.

Many music shrines were injured by bombs. In Bayreuth, the home of Richard Wagner, the Villa Wahnfried, was almost demolished. The Festival Theater, however, was virtually untouched. In Bonn, the birthplace of Beethoven was surrounded by devastation. The house itself was badly damaged, but not destroyed, while the monument to Beethoven escaped injury altogether.

Orchestras.—The major symphony orchestras of the country enjoyed full seasons and almost capacity attendance. Among the older organizations, the Philharmonic-Symphony Society of New York opened its 103d season early in the fall of 1944; the Boston Symphony its 64th; Chicago its 54th; Cincinnati its 50th (Golden Jubilee); Philadelphia its 45th; Seattle its 41st; and Cleveland its 27th. The Detroit Symphony Orchestra had a special reason for celebration when it opened its 30th season October 12. It had survived a crumbling financial structure and had benefited from a reorganization which put it back into the ranks of leading orchestras. In 1941–42 the aftermath of Pearl Harbor had so disrupted the personnel and the backing of the orchestra that it was forced to cancel its 1942–43 season, except for a commercially sponsored series of Sunday radio concerts. Fortunately, this series held together enough of the orchestra to enable a newly-formed group, the Detroit Orchestra, Inc., to create a stable financial foundation. In

August 1943, an industrial chemist of Detroit, Henry H. Reichold, became president of the board of trustees and personally underwrote the 1943-44 season. Karl Krueger was brought from Kansas City as conductor, and 18 concerts were given. The 1944–45 season was longer, 20 pairs of subscription concerts and 16 children's concerts, and in addition there was a series of 20 half-hour broadcasts sponsored by Reichold. This philanthropist believes that a symphony orchestra can be put on a paying basis if it is merchandised in the same manner that commercial products are exploited. Many Detroit firms have bought advertising space in the orchestra's program books, and a number of them purchase blocks of tickets for free distribution among their employees.

Losses of men to the armed services left many places to be filled in the ranks of the leading orchestras. The Indianapolis Symphony (Fabien Sevitzky, conductor) opened its 1944–45 season with 50 per cent of its personnel new, and the combined reports of 18 major orchestras showed that 385 of their former members were in the military service. Of the 1,513 musicians employed by the orchestras during the 1944–45 season, 210 were women.

Several orchestras announced reappointment of conductors at the close of the 1944–45 season. Reginald Stewart was engaged for another year as conductor of the Baltimore Symphony, and Eugene Ormandy's contract with the Philadelphia Orchestra was extended to 1951.

At the annual meeting of symphony orchestra managers in Philadelphia, (May 1945), Harl McDonald, manager of the Philadelphia Orchestra, presented a composite financial report of 18 major orchestras. The gross operating expenses of the 18 orchestras totaled $5,558,589, and the gross earned income $3,827,639. The resulting combined deficit of $1,730,950 was offset by gifts from philanthropists and friends of the orchestras totaling $1,758,502, yielding a combined surplus of $27,552. Some orchestras fared better from these gifts than others: twelve showed a combined surplus of $84,576, and five were left with a combined, unfinanced, deficit of $57,024. One had neither a surplus nor a deficit. Five of the orchestras enjoyed state or municipal grants.

The combined orchestras played a total of 1,479 concerts during the 1944–45 season, exclusive of broadcasts, to a total attendance of 3,473,628 persons. Six of the orchestras broadcast for commercial sponsors, and nine were paid a fee for sustaining broadcasts. Analysis of expenses showed that 70.8 per cent of the orchestras' expenditures was for conductors', musicians' and soloists' salaries and fees; 18.9 per cent for other direct concert expenses, and 10.3 per cent for administrative costs.

Opera. — New York's Metropolitan Opera House opened its 1944–45 season with a performance of *Faust*, November 27. From then until spring, the company gave 125 performances in New York and 48 on tour. The repertoire included 29 operas, of which the most performed were *Aida* (nine times in New York and three on tour), *La Bohème* (seven in New York, three on tour), *Lucia* (five in New York, five on tour), and *Don Giovanni* (five in New York, four on tour). *Carmen* was presented six times in New York, but only once out of town. The most important revival of the season was that of Wagner's *Die Meistersinger*, January 12, which won praise from the critics and the patronage of the public, not only for the distinguished performance of a cast headed by Charles Kullman, Eleanor Steber, and Herbert Janssen, but also for the superb conducting of George Szell and the colorful staging of Herbert Graf. *Die Meistersinger* had not been given at the Metropolitan for five years, and during the 1944–45 season it received four performances in New York, and four on tour. Other revivals were *La Gioconda*, January 25, after an absence of five years; Rimsky-Korsakov's *Le Coq d'Or*, March 1, after two years; and Beethoven's *Fidelio*, March 17, presented in English by a cast composed almost entirely of young Americans—Regina Resnik, Arthur Carron, Frances Greer, and others.

For the first time since the Metropolitan Opera Association bought the Opera House from the Metropolitan Real Estate Company in 1940, the season's operations showed a profit. This was made possible in part by reduction of real estate taxes, effected during the previous year by action of the New York State Legislature. The total receipts for the 1944–45 season were $2,263,680.46, of which $1,391,030 came from New York performances; $520,624 from out-of-town performances; $159,443 from broadcasting, and the rest from rentals, concessions, and contributions. Of the contributions, $10,000 was donated by the Northern Ohio Opera Association, Inc. The expenses, with more than a million dollars paid to artists, musicians, and conductors, totaled $2,117,674.91. With $140,132.96 additional written off for taxes, interest and depreciation, the association was left with a net operating gain of $5,872.59.

Subscriptions have been increasing over the past three years. In the 1942–43 season 45 per cent of the seats were filled by subscribers; in 1943–44, 48 per cent, and in 1944–45, 55 per cent. It was in 1942 that the top prices were reduced from $7.00 to $5.50, plus federal tax. As a result, the actual revenue has increased from 74 per cent of actual capacity in 1941–42, to 95 per cent in 1944–45. Two cities were added to the annual spring tour in 1945—Lafayette, Ind., and Minneapolis, Minn. Baltimore was restored to the list of cities visited, after an absence of two years, and the season in Boston was increased from eight to twelve performances. As usual, five special matinees were given for the school children of New York and surrounding communities.

In March, the Metropolitan Opera Guild celebrated its tenth birthday by presenting $10,000 to the association, to be used for new productions. The former Metropolitan Auditions of the Air were re-entitled "The Metropolitan Opera Presents" and the winners were announced in April. Robert Merrill, baritone of Brooklyn, N.Y., and Thomas Tibbett Hayward, tenor of Kansas City, received checks of $1,000, and contracts for the following season. Joseph Victor Laderoute, tenor, of Sault Ste. Marie, Ontario, and Pierrette Alarie, soprano, of Montreal, were given $500 scholarships, and granted the Metropolitan an option on their services.

The 1944–45 season completed Edward Johnson's tenth year as general manager of the Metropolitan Opera Association. The membership of the association voted unanimously to extend his contract for another two years.

After five years' lapse the Chicago Opera Company presented a five-week season at the Civic Opera House beginning Oct. 16, 1944. *Carmen* was performed on the opening night with Gladys Swarthout and Kurt Baum heading the cast. The repertoire included *La Traviata*,

with Bidu Sayao and Nino Martini; *La Bohème,* with Marjorie Hess, Martini, and Richard Bonelli; *Aida,* with Zinka Milanov and Kerstin Thorborg; *Die Walküre,* with Helen Traubel and Astrid Varnay; *Romeo and Juliet,* with Jeanette MacDonald and Michael Bartlett; *Pelléas and Mélisande,* with Bidu Sayao and Martial Singher; *Faust,* with Vivian della Chiesa; Raoul Jobin, and Ezio Pinza; *Rigoletto,* with Leonard Warren, Josephine Antoine, and Jan Peerce; *Il Trovatore,* with Zinka Milanov, Kerstin Thorborg, and Richard Bonelli; and *Otello* with Rose Bampton.

San Francisco enjoyed its 22d opera season, starting Sept. 29, 1944, with *Aida.* The highlight of the season was the production of *Salome* with Lily Djanel in the title role. The singers for all the operas included Lily Pons, Risë Stevens, Lily Djanel, Leonard Warren, Charles Kullman, Jan Peerce, and Vivian della Chiesa. In March, the San Francisco Opera Association announced that its 1945–46 season would open September 25 in the War Memorial Opera House, and would be extended to five weeks.

Summer Music.—The Berkshire Music Center at Tanglewood, near Lenox, Mass., was the scene of a Bach-Mozart Festival, opening July 28. Serge Koussevitzky conducted a chamber-orchestra of players from the Boston Symphony, and the soloists were Alexander Brailowsky, Abram Chasins, and Constance Keene, pianists. Virtually all of the seats for the festival were sold, mostly to people from neighboring communities. Gasoline restrictions and difficulties of railroad travel allowed few persons other than representatives of newspapers to make special trips to Tanglewood.

Bad weather during July forced many postponements of the scheduled opera and ballet performances at the Lewisohn Stadium in New York, but every announced performance was given, even though delayed. The season opened June 18 and continued for eight weeks. Conductors were Artur Rodzinski, Alexander Smallens, Leonard Bernstein, Eugene Goossens, Fabien Sevitzky, Ignace Strasfogel, and Andre Kostelanetz, who led a special concert featuring Lily Pons, June 28. Instrumental soloists included Josef Hofmann, Alexander Brailowsky, Oscar Levant, Aleo Templeton, and Ania Dorfman, pianists; duo-pianists Lubeschutz and Nemenoff; and Erica Morini, Nathan Milstein, and Bronislaw Hubermann, violinists. The Platoff Don Cossack Chorus sang June 23; James Melton, June 21; and other features included a Sigmund Romberg concert directed by the composer; an all-Gershwin concert; Beethoven's Ninth Symphony with the Schola Cantorum; and a complete performance of *Carmen,* with Gladys Swarthout in the title role. The scheduled production of this work (July 9) was interrupted at the close of the first act by rain, but complete performances were given July 11 and 13.

The 60th season of the Boston Symphony "Pops" concerts ran from May until July 17. The Hollywood Bowl offered 35 concerts in its 24th season, 16 of them conducted by Leopold Stokowski. Washington enjoyed its Watergate concerts played by the National Symphony Orchestra. St. Louis had its municipal summer opera, with a repertoire which included *The New Moon, The Cat and the Fiddle, Madame Pompadour,* and other favorite light operas. The annual summer concerts were given in Chicago's Grant Park; Cincinnati had its 24th consecutive season of summer grand opera in the pavilion of the Zoological Society, offering 36 performances with Metropolitan stars; Philadelphia's Robin Hood Dell concerts were given from June 20 to August 3, with a record of postponements because of rain (12 out of 28 concerts); New Orleans had its third series of "Pop" concerts, starting June 7, this year in Beauregard Square; and summer concerts in San Francisco were resumed in the Civic Auditorium after a lapse of ten years. The Chautauqua Institution at Chautauqua, New York, opened its 72d summer program July 1. Musical features included the concerts of the Chautauqua Symphony under Franco Autori, six performances of the opera company conducted by Alfredo Valenti, and numerous recitals by soloists.

Radio Music.—A sampling of musical favorites on the radio was gained by the second annual polls conducted by *Musical America,* and announced in May and July 1945 issues of that journal. One of the polls was conducted among the 500 music editors of the country, and the other among the general public. The professional critics and the public showed a surprising similarity of taste. Both voted that the four days of music in tribute to Franklin D. Roosevelt was the outstanding musical event of the year. Both considered *Die Meistersinger* the best performance of any rendered by the Metropolitan Opera Company; the Philharmonic-Symphony of New York was voted the best symphony orchestra by each group; Arturo Toscanini, Serge Koussevitsky, and Artur Rodzinski were named by both as the best symphony conductors; and Bruno Walter, George Szell, and Erich Leinsdorf, as the best opera conductors, in the order listed. The *Telephone Hour* was voted by both to be the best orchestral program with featured soloists; the *Texaco Star Theater* the best musical variety show; the Stradivari Orchestra the best small ensemble; Alec Templeton the best instrumentalist regularly featured; and Milton Cross and Ben Grauer were awarded first and second place, respectively, as leading announcer-commentators.

Festivals.—The annual Worcester (Massachusetts) Festival was resumed Oct. 9–14, 1944, after a year's interruption caused by the death of the former conductor, Albert Stoessel, and by war conditions. Walter Howe is the new festival director, and the chorus was supplemented by the Philadelphia Orchestra under Eugene Ormandy, and by noted soloists. Columbia University presented in New York its first annual Festival of Contemporary American Music, sponsored by the Alice M. Ditson Fund, May 12–14, 1945. At this festival Howard Hanson conducted an orchestral concert played by the NBC Symphony, the Walden String Quartet gave a chamber-music concert, and a new opera by Normand Lockwood, based on Percy MacKaye's play, *The Scarecrow,* was performed under the direction of Otto Luening. The Eastman School Festival of American Music was given for the 20th consecutive season at Rochester, New York, April 24–28. The programs presented new works and others which had been heard at previous American Composers' Concerts in Rochester. The annual Bach Festival at Bethlehem, Pa., May 18–19, was conducted by Ifor Jones, and offered the *St. John Passion,* the Mass in B Minor, and the *Musikalisches Opfer.* The tenth Coolidge Festival at the Library of Congress in Washington Oct. 28–30, 1944, commemorated the 80th birthday of Mrs. Elizabeth Sprague Coolidge, founder and sponsor of the festival. One of its features was Aaron Copland's ballet, *Appalachian Spring,*

which was commissioned by Mrs. Coolidge. The 52d annual May Festival at Ann Arbor, Mich. (May 3–6), enlisted the services of the Philadelphia Orchestra, the University Choral Society, and a number of soloists, including Ezio Pinza, Eleanor Steber, Frederick Jagel, and Oscar Levant.

Composers.—Film-actor Lionel Barrymore joined the ranks of American composers when his *Praeludium and Fugue* was given its world premiere by the Indianapolis Orchestra Oct. 28, 1944. The $500 Pulitzer Prize for music was awarded May 7 to Aaron Copland for his ballet, *Appalachian Spring*. The work had originally been written for the dancer, Martha Graham, on commission from Mrs. Elizabeth Sprague Coolidge. William Schuman, American composer, was appointed president of the Juilliard School of Music, to succeed Ernest Hutcheson, who resigned in March. Schuman had been teaching since 1935 at Sarah Lawrence College, and assumed his new duties October 1. Walter Piston was awarded the annual testimonial of the Music Critics' Circle of New York for his Second Symphony adjudged the best orchestral work by an American composer heard in New York during the 1944–45 season. The circle's award for dramatic music was given to Aaron Copland for *Appalachian Spring*.

Necrology.—Edgar Stillman Kelley, the dean of American symphonic composers, died in New York, Nov. 12, 1944, at the age of 87. Kelley was born in Sparta, Wis., in 1857, and had a long list of major works. His incidental music for the stage production of Lew Wallace's *Ben Hur* is said to have had over 5,000 performances in English-speaking countries. In 1937 the Edgar Stillman Kelley Society was founded in New York for the purpose of publishing reasonably-priced scores of works of young American composers. Mrs. Kelley, who survives her husband, has long been active in the National Federation of Music Clubs, of which she was at one time president.

Karl Flesch, violinist, and at one time head of the violin department of the Curtis Institute of Music in Philadelphia, died in Lausanne, Switzerland, Nov. 15, 1944, at the age of 71. He was a native of Moson, Hungary, and was famous as a concert violinist. He was associated with the Curtis Institute from its founding in 1924 until 1928 and then went to Berlin as a faculty member of the Academy of Music. Later the Nazi regime forced him to leave the country and he settled in Switzerland.

Nelle Richmond Eberhart, librettist and author of song lyrics, died in Kansas City, Nov. 15, 1944. She was born in Detroit and was a school teacher in Nebraska until her marriage in 1894 to Dr. Oscar Eberhart. Her best known texts were those set to music by Charles Wakefield Cadman; the operas, *Shanewis*, and *The Garden of Mystery*, and the songs, *From the Land of the Sky Blue Water* and *At Dawning*.

Josef Lhevinne, concert pianist and teacher, died at his home in Kew Gardens, Long Island, N.Y., Dec. 2, 1944, twelve days before his 70th birthday. Lhevinne was born in Moscow. He achieved a world-wide reputation, and made his home permanently in this country after the First World War. For a number of years both he and his wife, Rosina Lhevinne (also a pianist), were prominent faculty members of the Juilliard School of Music.

Mrs. H. H. A. Beach, leading American woman-composer, died in New York, Dec. 27, 1944, at the age of 77. Born Amy Cheney, in Henniker, N.H. (1867), she made her formal debut as a pianist in 1883, and in the following year appeared as soloist with the Boston Symphony under Theodore Thomas. In 1885 she married Dr. Henry Aubrey Beach of Boston, and until his death in 1910 she made few appearances in public. From 1910 to 1914 she lived in Europe, playing concerts in the continental music centers. Her works include major pieces for orchestra, for chorus, and many songs, of which the best known are the Browning settings: *The Year's at the Spring* and *Ah, Love! But a Day*.

Judson House, opera and concert tenor, died suddenly at his home in Dumont, N.J., Jan. 5, 1945. He was 50 years old.

Kenneth Clark, at one time secretary of the National Music Week Committee, died at Princeton, N.J., January 22, at the age of 62. During the First World War he was an entertainment secretary with the Y.M.C.A. and served overseas. For the 1940 presidential campaign he composed *The Willkie March*.

Harold Sanford, from 1906 to 1924 assistant conductor and orchestra manager for Victor Herbert, died at Springfield, Mass., January 19, at the age of 65. For 14 years, until his retirement in 1940, he had been an orchestral conductor for the National Broadcasting Company.

Hamilton Crawford MacDougall, organist and composer, and for 27 years a member of the music faculty at Wellesley College, died at Wellesley, Mass., March 16. MacDougall was 86 years old, and was one of the founders of the American Guild of Organists.

Edwin Evans, English music critic and musicologist, died in London, March 3, at the age of 70. Before he commenced writing on musical subjects, in 1901, Evans had been identified with submarine cables, stock brokerage and banking.

Oscar Thompson, music critic of the New York *Sun* and former editor of *Musical America*, died at the age of 57 in New York, July 2. In addition to his work as editor and music critic, Thompson was the author of numerous books on music and the compiler of the *International Cyclopedia of Music and Musicians*.

Erno Rapee, orchestra conductor, died in New York, June 26, at the age of 54. He was born in Budapest in 1891, and came to New York in 1912. In 1917 he became conductor of the orchestra at the Rialto Theater in New York, and thereupon became identified with music in motion picture houses. His most prominent associations were with the Roxy Theater, and the Radio City Music Hall, where he was music director from 1932 until his death.

Nicolas Tcherepnin, Russian composer, died in Paris at the age of 72, according to news received in New York, June 29. He was the composer of three operas, and numerous ballets.

Pietro Mascagni, Italian composer of the opera, *Cavalleria Rusticana*, died in Rome, August 2, at the age of 81. Although Mascagni composed many operas, none achieved the vogue of his masterpiece. (See LATIN AMERICAN MUSIC.)

JOHN TASKER HOWARD,
Musician, Composer and Author.

MUSSOLINI, Benito, Italian dictator: b. Dovia, province of Forli, Italy, July 29, 1883; d. near Como, Italy, April 28, 1945. Founder of fascism and for over 20 years, ruler of Italy in all but name, Benito Mussolini was the first of the 20th century's dictators to achieve power, and the

first to lose it. He was educated in the elementary schools and at Switzerland's University of Lausanne. An ardent Socialist at the beginning of his political career, in 1912 he became editor of the Socialist Party's daily *Avanti.* He resigned as *Avanti's* editor in 1914 to publish his own paper, *Il Popolo d'Italia,* in which he campaigned for Italian intervention in the First World War on the side of the Allies. After Italy entered the war, he volunteered for military service, spent two years in the army, and in February 1917, was discharged after having been severely wounded. In March 1919, he founded the Fascist movement, popularizing it through his support of D'Annunzio's occupation of Fiume. He obtained financial support from Italy's industrialists with his claim of having saved the nation from bolshevism. Thousands hastened to join the movement, and in 1921, he organized fascism as a political party, imposing the strictest discipline upon party members and supervising the spread of fascism throughout Italy. He then turned his attention to the government; assailed it as weak and vacillating; and in October 1922, ordered the Fascist march on Rome. After token resistance, the government yielded, and Mussolini was asked by the king to form a ministry, with himself as premier. From that time forward, he was absolute dictator of Italy—assumed the chief portfolios, brought about changes in electoral laws to insure his continued power, established rigorous censorship of the press, and prosecuted and drove into exile his chief opponents.

In the early years of his dictatorship, Mussolini did bring to Italy a measure of economic health. It was in following his ultranationalistic and ultramilitaristic foreign policy that the Italian people came to grief. In 1930, Mussolini denounced the provisions of the Versailles Treaty; in 1935–36, he invaded and conquered Ethiopia; and in 1937, he withdrew his country from the League of Nations because it approved sanctions against Italy. After the outbreak of the Spanish Civil War, Mussolini aided Franco's rebel forces, first secretly, later openly, with troops, arms, and money.

He took his country into the Second World War on the side of Germany on June 10, 1940, when Hitler's armies were overrunning France. Mussolini gained few of his expected spoils from France, and his subsequent campaigns in Greece and in North Africa turned into disastrous failures, prelude to Allied conquests of Tunisia and Sicily, and his resignation as premier, on July 25, 1943. After his liberation from Italian custody, Mussolini was installed as head of a puppet, Axis-occupied Italian state, with its capital first in Rome, later in northern Italy. Even this nominal authority was short-lived. On April 26, 1945, Allied armies captured Verona and Parma, and Italian Partisans joined in fighting disintegrating Fascist and German forces. On that day, Mussolini attempted to flee to Switzerland from his Lake Garda villa; was captured by Partisans at Nesso on Lake Como; and two days later was executed, with his mistress Clara Petacci and a number of Fascist officials, on the outskirts of the village of Como. The bodies of the dictator and his mistress were taken to Milan, where they were subjected to mob abuse, and later buried in unmarked graves in the pauper section of the city's cemetery.

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NATAL. See SOUTH AFRICA, UNION OF.

NATIONAL ACADEMY OF DESIGN. Oldest organization in the United States with a membership composed exclusively of artists. Its present membership, comprising painters, sculptors, architects, workers in the graphic arts, and aquarellists, is divided into two groups, associates and academicians. When an artist is elected an associate of the academy, he presents the organization with a diploma portrait; when an associate is elected an academician, he presents the academy with one of his own works of art. Through this qualification procedure, the academy has accumulated an extremely valuable art collection which stands as a record of the progress and development of American art and architecture. Women as well as men are eligible for membership which is limited to professional artists.

The following events comprise the National Academy exhibition season of 1944–45: British-American Good Will Exhibition, Nov. 9 to Dec. 2, 1944; 29th Annual of the Society of American Etchers, Inc., Nov. 10 to Dec. 5, 1944; National Academy First Annual Exhibition of Contemporary American Drawings, Dec. 13, 1944 to Jan. 10, 1945; 1945 Exhibition of Paintings by Merchant Seamen of the United Nations, Dec. 13, 1944 to Jan. 10, 1945; 78th Annual Exhibition of the American Water Color Society, Jan. 19 to Feb. 7, 1945; National Academy 119th Annual Exhibition, March 14 to April 3, 1945; 53d Annual Exhibition of the National Association of Women Artists, April 21 to May 19, 1945.

The National Academy acts as trustee of the Ranger and Abbey funds, both of which are used to finance scholarships, awards and purchases of works of art for donation to other public institutions. It also maintains a free school where painting, sculpture, drawing, and mural painting are taught. Hobart Nichols is president of the academy and John Taylor Arms is first vice president. Headquarters: 1083 Fifth Avenue, New York 28, N.Y.

KATHLEEN JOHNSTON,
Librarian, National Academy of Design.

NATIONAL ACADEMY OF SCIENCES, The. This scientific body originated from the need of the government for technical scientific advice in connection with the Civil War. Its charter, passed by Congress and approved by President Lincoln in 1863, provides that it "shall, whenever called upon by any department of the Government, investigate, examine, experiment, and report upon any subject of science or art, the actual expense of such investigations . . . to be paid from appropriations which may be made for the purpose, but the Academy shall receive no compensation

whatever for any services to the Government of the United States."

The academy's membership is limited to 450 citizens of the United States and 50 foreign associates. There are no applications for memberships. Nominations are presented by the sections representing different sciences.

In order to permit the organization of the nation's scientific resources on a more inclusive scale than was possible within the membership of the academy itself, the National Research Council was organized by the National Academy of Sciences at the request of President Wilson in the spring of 1916, and was established on a permanent basis on May 11, 1918, by presidential executive order, "to promote research in the mathematical, physical, and biological sciences, and in the application of these sciences to engineering, agriculture, medicine, and other useful arts, with the object of increasing knowledge, of strengthening the national defense, and of contributing in other ways to the public welfare."

The membership of the council is composed largely of appointed representatives of approximately 85 of the major scientific and technical societies of the country, together with representatives of certain other research organizations, representatives of government scientific bureaus, and a limited number of members at large. These members are appointed by the president of the National Academy of Sciences. Serving on committees of the council are approximately 1,800 outstanding scientists.

The Academy-Research Council does not maintain scientific laboratories but functions through sponsorship of conferences, technical committees, surveys, scientific publications, and administration of funds for research projects and fellowships.

The administrative costs of the academy and council are charged against the income of a permanent endowment, given together with the building, by the Carnegie Corporation. Financial support of scientific projects is obtained from contracts with government and private agencies and from special grants from foundations, societies, and individuals.

Many highly confidential projects contributing directly to the war effort were financed through contracts with the Office of Scientific Research and Development, the War Production Board, War and Navy departments, and other federal agencies, as well as by grants from various sources.

The academy issues the *Proceedings, Scientific Memoirs,* and *Biographical Memoirs.* An *Annual Report* is made to Congress and published.

The council issues a series of *Bulletins and Reprints,* and *Circulars.* A list of publications, with prices, is available upon request.

Academy officers: Frank B. Jewett, president; Luther P. Eisenhart, vice president; Detlev W. Bronk, foreign secretary; F. E. Wright, home secretary; J. C. Hunsaker, treasurer; George B. Darling, executive secretary.

Council officers: Ross G. Harrison, chairman; George B. Darling, executive secretary.

The building of the National Academy of Sciences and the National Research Council is located at 2101 Constitution Avenue, Washington 6, D.C.

GEORGE B. DARLING,
Executive Secretary, National Academy of Sciences and National Research Council.

NATIONAL ARCHIVES. Established by an act of Congress approved June 19, 1934, the National Archives preserves the noncurrent records of the United States government that have administrative, legal, research, or other value and makes them accessible in order that the recorded experience of the nation may be available to guide and assist the government and the people in conducting their affairs.

The National Archives has in its custody about 700,000 cubic feet of records received from Congress, the White House, every executive department, most of the independent agencies, and several of the federal courts. Nearly a third of them relate to military affairs; these include the main bodies of noncurrent records of the War and Navy departments, many army and navy field records, and most of the service and pension records through the First World War. Diplomatic, consular, and administrative records of the State Department through 1929, records of hundreds of diplomatic and consular posts, and most of the older records of the Treasury and Justice departments are in the National Archives. Records from the Interior Department Archives include the basic files on Indian affairs, lands, mines, reclamation, national parks, and the administration of the territories. All noncurrent records in Washington of the Agriculture Department and large portions of Commerce, Labor, and Post Office Department records have also been received. Among them are records of the documentation of vessels, 1789–1942; schedules of censuses of population, 1790–1870; and weather records, 1819–1943. Records of several recently liquidated war agencies, such as the Office of Civilian Defense and the Office of War Information, have also been received.

These records include 400,000 maps and charts, of which 190,000 are manuscript or annotated—the largest collection of such maps in the country; 7,500,000 running feet of motion-picture film, from early "nickelodeon shows" to the latest newsreels; 95,000 sound recordings, including many recordings of broadcasts; and 1,200,000 photographic items.

The National Archives serves the government and the public by making available the records in its custody or information from them. Its central search rooms are open from 8:45 A. M. to 10 P. M., Mondays through Fridays, and from 8:45 A. M. to 5:15 P. M. on Saturdays. Many individuals consult the records for historical or genealogical information or for data for the protection of their rights and property. Last year federal agencies used such records as transcripts of enemy broadcasts, files on alien property, and materials on the artificial-limb industry. Information on reconversion problems was in great demand; both government and industry were furnished data on the cancellation of contracts, the disposition of surplus property, and the termination of economic controls following the First World War. A notable service rendered the military authorities was the compilation of lists of European and Asiatic archival agencies and their contents and of manuals on the use of the records which contributed toward their protection and effective utilization by the Allied forces.

Records significant in the nation's history are made available to the public in the Exhibition Hall. Circular No. 6, *The National Archives of the United States [with] Catalog of Exhibit,* describes the functions of the agency and a general exhibit including such documents as the Bill of Rights. The major special exhibit of the past year is described in a catalog, *President Roosevelt and International Co-operation for War and*

Peace; the German and Japanese surrender documents, which were added to this exhibit, are reproduced in facsimile in publications in press. Other recent publications include *How to Dispose of Records—A Manual for Federal Officials* and several *Reference Information Circulars* designed to furnish to government officials clues to information in the records on a wide variety of problems.

Through the Division of the Federal Register, the National Archives keeps the public informed of federal regulations. All proclamations, orders, and rules of the government that have general applicability and legal effect are published in the *Federal Register* and the division's files of such regulations are open to public inspection. A *Cumulative Supplement to the Code of Federal Regulations* (in 10 books) was recently published.

The Franklin D. Roosevelt Library at Hyde Park, N. Y., is a part of the National Archives Establishment.

SOLON J. BUCK,
Archivist of the United States.

NATIONAL ASSOCIATION OF MANUFACTURERS (NAM). This association, which had its origin in a convention of several hundred representative American manufacturers who met in Cincinnati, Ohio, celebrated its 50th anniversary Jan. 22, 1945. The first annual convention of the association was held in Chicago, Ill., Jan. 21, 1896, when the name, The National Association of Manufacturers of the United States of America, was adopted; a preamble setting forth the objects of the association was published; and a constitution was adopted. In 1945 the association had more than 14,000 active members and approximately 1,200 associate members. Affiliated with the association is the National Industrial Council, a federation of some 300 national, state, and local associations of employers. The association is governed by a board of directors of 150 members which meets nine times a year. Fifteen hundred executives representing industries, large and small, in all parts of the United States, serve on standing committees and special committees of the association and meet at various times throughout the year to reconcile geographical and industrial difference on all subjects of general interest to industry. The entire list of the associations' activities are too numerous to mention in the space available. Headquarters of the organization are located in New York City. Offices are maintained in Washington, D.C., San Francisco, and Los Angeles, while regional offices are maintained in Chicago, Ill.; Dallas, Texas; Denver, Colo.; Atlanta, Ga.; St. Louis, Mo.; Philadelphia, Pa.; Portland, Oreg.; and Seattle, Wash. The president in 1945 was Ira Mosher. Robert R. Wason was chosen president for 1946. Noel Sargent is secretary.

NATIONAL BUREAU OF STANDARDS. See STANDARDS, NATIONAL BUREAU OF.

NATIONAL CHILD LABOR COMMITTEE. See CHILD LABOR COMMITTEE, NATIONAL.

NATIONAL CIVIC FEDERATION, The. An American organization founded in 1900 by Ralph Montgomery Easley, its purpose being: "To provide for a thorough discussion of questions of national import affecting either the foreign or domestic policy of the United States, to aid in the crystallization of the most enlightened public sentiment of the country in respect thereto, and, when desirable to promote necessary legislation in accordance therewith."

Vital questions discussed in *The National Civic Federation Review* to aid in clarifying the public mind, during 1945, included: "The Profit System—The Wage System," portraying individual opportunities afforded under capitalism; "Men, Books and our Constitution," depicting the influence of ancient and contemporary writers upon the minds of the framers of our Constitution; "Post War Activities of Industrialists," related to world trade and domestic proposals; "Some Labor Problems Here and Abroad,"—our wage policy—radical program of British Labor Party—Free Trade Unions in foreign countries; "Proposed Expansion of Federal Social Security System"; "Coat of Arms, Crest and Great Seal of the United States"; "The Railroads and Railway Brotherhoods"; "Timely Admonitions of Thomas Jefferson"; "Our Farm Problem"; agriculture's contribution toward victory; and "Proposal for Return to the International Gold Standard."

The federation's special Department on Patriotic Education of the Youth has concentrated its efforts upon counteracting the ideologies of the dictators. It has distributed among educators and placed in classrooms of social science studies in public schools in hundreds of cities sound pronouncements enunciating the ideals of American statesmen. Through contributions of public spirited citizens, it has provided gratis a replica of the beautiful Gaspard portrait etching of *Abraham Lincoln* as well as his golden words stressing the right of ownership of private property, the opportunity of the laborer today to become the employer tomorrow, the equal rights of men, affirmed by our republican form of government; and the *Gettysburg Address.* It also distributed a replica in nine colors, with its historical development, of the Great Seal of the United States of America as well as a Students' Study Sheet. Among other documents issued and distributed are the *Bill of Rights,* and a photographic copy of the original of the Constitution of the United States of America, with a special treatise on its making.

The federation's directing heads are: C. S. Breckenridge, chairman, executive council; H. B. Lounsbury, assistant to the chairman; Mrs. Ralph M. Easley, secretary, executive council; Leland L. Rounds, secretary-treasurer; Gustave A. Gerber, general counsel; Phillip J. Sawyer, director, Department of Youth Education. National headquarters are located at 112 Park Avenue, New York 17, N.Y. Branch offices are maintained at 139 North Clark Street, Chicago 2, Ill., and 80 Boylston Street, Boston, Mass.

MRS. RALPH M. EASLEY,
Secretary, Executive Council, The National Civic Federation.

NATIONAL EDUCATION ASSOCIATION OF THE UNITED STATES (NEA). A national professional organization of teachers and others engaged in educational work "to advance the interest of the teaching profession, promote the welfare of children and foster the education of all people." Willard E. Givens, executive secretary; William G. Carr, associate secretary; Karl H. Berns, assistant secretary; headquarters building, 1201 Sixteenth Street, N.W., Washington, D.C.

Officers.—F. L. Schlagle, superintendent of schools, Kansas City, Kans., president; B. F. Stanton, associate professor of education, Mount Union College, Alliance, Ohio, treasurer; Mrs. Mary D. Barnes, principal, William Livingston school, Elizabeth, N.J., first vice president. There are eleven other vice presidents. Honorary presi-

dents are John Dewey, professor-emeritus, Columbia University, New York City, and Mrs. Susan M. Dorsey, superintendent-emeritus, Los Angeles, Calif.

Members of the executive committee are: Mr. Schlagle; Mrs. Edith B. Joynes, principal, Gatewood school, Norfolk, Va.; Mrs. Barnes; Joseph H. Saunders, superintendent of schools, Newport News, Va.; Mr. Stanton; Leonard L. Bowman, vice principal, high school, Santa Barbara, Calif.; Glenn E. Snow, president, Dixie Junior College, Saint George, Utah; Emily A. Tarbell, high school teacher, Syracuse, N.Y.; and L. V. Phillips, commissioner, Indiana High School Athletics Association, Indianapolis.

Members of the Board of Trustees are: Mr. Saunders, chairman; Mr. Schlagle; Edgar G. Doudna, Board of Normal School Regents, Madison, Wis., vice chairman; Florence Hale, editor, *The Grade Teacher,* Darien, Conn., secretary; and Myrtle Hooper Dahl, teacher, Minneapolis, Minn.

Departments.—The association is composed of 29 departments serving the fields indicated by their names: Adult Education; American Association for Health, Physical Education and Recreation; American Association of School Administrators; American Association of Teachers Colleges; American Educational Research Association; American Industrial Arts Association; Art Education; Business Education; Classroom Teachers; Elementary School Principals; Garden Education; Higher Education; Home Economics; International Council for Exceptional Children; Kindergarten-Primary Education; Lip Reading; Music Educators National Conference; National Association of Deans of Women; National Association of Journalism Directors; National Association of Teachers of Speech; National Council for the Social Studies; National Council of Administrative Women in Education; National Science Teachers Association; Rural Education; Secondary Teachers; Supervision and Curriculum Development; Visual Instruction; and Vocational Education.

Membership.—The NEA is the largest professional organization in the world. In 1945 it had a direct membership of 331,605, and a combined membership of 900,000. Many states are adopting a plan to have unified membership in local, state and national teachers' organizations.

Committees.—Much of the work of the NEA is done through commissions and committees. Special deliberative bodies are known either as councils or commissions. These include: Educational Policies Commission; Legislative Commission; National Commission for the Defense of Democracy through Education; National Commission on Safety Education; National Council of Education; and the National Council on Teacher Retirement.

Standing committees carry on continuous programs of study, interpretation and action. These committees are: Citizenship, Credit Unions, International Relations, Professional Ethics, Tax Education and School Finance, Teacher Preparation and Certification, and Tenure and Academic Freedom. Joint committees with other organizations having mutual interests in specific problems include association with the American Legion, the American Library Association, the American Teachers Association and the National Congress of Parents and Teachers.

Publications.—The *Journal of the National Education Association,* published monthly during the school year, circulates to all members. The association *Journal* and the 22 periodicals of the departments of the NEA are a clearing house for information and discussion of significant problems facing American education. Approximately 270 other publications of the organization and its departments and committees were issued during 1945. Subjects included technics of teaching; source materials for teachers; research studies on teacher welfare, school administration and teaching problems; committee and commission reports; news bulletins; yearbooks on current topics and methods; and policy statements.

Education for All *American Youth,* a document which outlines the characteristics of a new postwar program for secondary education, was published by the Educational Policies Commission. It is being used as a textbook and as a basis for legislation.

Conventions.—Due to wartime travel conditions, all conventions of the association and its departments were canceled.

Conferences.—The first White House Conference on Rural Education was held Oct. 3-5, 1944, upon invitation from the President and Mrs. Roosevelt. Called, planned and directed by three divisions of the NEA, the conference was attended by 230 leaders in education, government, labor, industry, and agriculture from 45 states. The report of the conference was published and includes speeches, discussions, and committee recommendations. A Charter for the Education of Rural Children was drafted.

A work conference on the educational problems of veterans was held by the NEA at the headquarters building Feb. 26-28, 1945, with leaders in adult education, veterans groups, government, labor, agriculture, and business attending. The conference recommendations have led to amendments (now in Congressional committees) to the "GI Bill of Rights." The report of the conference has resulted in special appropriations by many state legislatures to provide for expanded educational facilities for the returning veteran, and serves as a basis of planning by school systems.

Education and the Peace.—The organized teaching profession of the United States was primarily responsible for the provision in the United Nations Charter for an international agency to promote educational and cultural co-operation. Dr. William G. Carr, associate secretary of the NEA and secretary of the Educational Policies Commission, was appointed a consultant to the American delegation to the United Nations Conference on International Organization by the Department of State. Regional conferences were held throughout the nation to consider the Educational Policies Commission's publication, *Education and the People's Peace,* urging the establishment of an international agency for education as part of the world organization. The NEA and many of its departments were members of the Liaison Committee for International Education. Members of the NEA testified during hearings on the Mundt resolution which passed the House of Representatives unanimously and which called for an international office of education as a force in maintaining the peace.

Teaching materials on the Dumbarton Oaks proposals and the United Nations Charter were prepared and widely distributed.

Legislation.—The primary emphasis has been placed on securing federal appropriations to the states for more adequately financing public elementary and secondary education. Both the Senate and the House of Representatives committees on education have held hearings on the NEA-backed Thomas-Hill (S.181) and Ramspeck (H.R.1296)

bills. These bills are designed to meet the crisis of classrooms without teachers, and to lessen inequalities of educational opportunity. They guarantee freedom of the states from federal interference in school administration, personnel, curriculum, instruction, methods of instruction, and materials of instruction.

Representatives of the NEA testified during Congressional hearings on the school lunch bills, government surplus property, universal military training and federal aid to public colleges. In addition the association is working for the enactment of amendments to the "GI Bill of Rights," as recommended by the Veterans' Education conference. Witnesses testified during hearings on the Mundt resolution and before the Senate Foreign Affairs committee, urging adoption of the United Nations Charter.

Special Projects.—Three new divisions were established during the year: audio-visual instructional service, adult education service and the division of travel service.

A series of state conferences was held by the National Commission for the Defense of Democracy through Education to study postwar problems and education.

At the request of education and civic groups in Chicago, Ill., and the nation, the Defense Commission conducted a six-months' investigation of personnel practices in the Chicago public schools. The commission has also taken measures to restore unjustly discharged teachers to their positions and to maintain freedom of the teachers from political interference.

Ten million parents and other citizens visited the schools during American Education Week, a project jointly sponsored by the NEA, the American Legion, the National Congress of Parents and Teachers, and the United States Office of Education.

NADINE GOLLADAY,
Office of Public Relations, National Education Association.

NATIONAL GEOGRAPHIC SOCIETY, The. Founded in 1888 in Washington, D.C., "for the increase and diffusion of geographic knowledge," this society now has 1,400,000 members. In 1945 the National Geographic Society and Cornell University continued their joint research project for a systematic study of the aurora borealis, under the leadership of Dr. C. W. Gartlein. The primary observatory is at Ithaca, and supplemental bases have been established at Hamilton and Geneva, all in New York. In addition, a network of 25 co-operating stations has been set up, ranging from Oregon to Prince Edward Island, and from north of Lake Superior south to Ithaca. From many of these scattered observation posts it is possible to observe auroral displays even when weather conditions obscure them at other stations. During the year observers were able to detect an increasing number of auroras not visible to the unaided eye, by the development of instruments, some of which make use of extremely sensitive photoelectric cells. The simplest of the mechanical aids is a series of colored filters which held before the eye make faint auroral lights visible during twilight and moonlight. The photoelectric instruments indicate the presence of auroras even when heavy clouds make them invisible. They also make a complete automatic record of auroral lights, visible and invisible, when no observer is present. A vast fund of information has been collected by the project and is being steadily increased. It will be used for future analysis in studying certain unknown aspects of auroras.

During 1945 the society sent out its second annual expedition for the study of North American birds, under the leadership of Dr. Arthur A. Allen. The season's work was carried on along the north shore of the Gulf of St. Lawrence (Quebec Province, Canada) and on the adjoining islands which contain Canadian bird sanctuaries. The studies included the making of natural color photographs of auks, murres, puffins, cormorants, eiders and red-throated loons in their nesting areas.

The National Geographic Society-Smithsonian Institution Expedition to Mexico to study remains of the Olmec culture centered its investigations in 1945 in the highlands near Tuxtla Gutierrez in the State of Chiapas. One of a group of eight mounds was excavated and was found to cover a complicated structure of limestone blocks unlike any previously discovered. The expedition also explored a number of caves used as dwellings or refuges and now containing numerous specimens of pottery. On the Rio Chiquito in southern Veracruz State the party discovered, late in the season, an area rich in gigantic carved stone heads, altars, monuments, and other art objects. The site will be developed by future expeditions.

The society's cartographic department produced during the year four 10-color wall maps, three of them covering areas in the eastern war theaters. They were the Philippine Islands, China, Northeastern United States, and Japan and Korea. Some of the cartographic material used in compiling the map of the Philippine Islands was obtained from data assembled over a 40-year period by the Coast and Geodetic Survey and the Army Map Service, which were saved from the Japanese by a last minute transfer to Corregidor and shipment from there by submarine. The map of China shows the vast sweep of that country extending from Russia's Tadzhik Republic on the west to the China Sea on the east and from Russian territory marked by the Amur River on the north to French Indochina and India on the south. The map shows Outer Mongolia, recognized as independent in August 1945. The spellings of the place names on the chart were adopted after a careful sifting of spellings according to numerous Chinese dialects. On the map are traced China's vital highways including the Red Route from Chungking via Chengtu to Ayaguz, Russia, and the Stilwell Road from the Assam border of India across Burma to Kunming in Yunnan Province. The chart of Japan and Korea represents those countries on a large scale depicting in detail the home islands of the shrunken empire and its one-time most important mainland possession, now freed. Insets show fringes of the former empire, especially important in the closing days of the war: Formosa, Ryukyu Island chain, Karafuto, the southern half of Sakhalin Island. Another inset shows Manila, Tokyo and Attu Island of the Aleutians as points on the same Great Circle route. The map of Northeastern United States, including portions of southern Canada covers an area into which is crammed North America's greatest concentration of population and industrial activity. It embraces the southern four of the five Great Lakes and extends westward to include Michigan and Indiana, and southward to take in all of Ohio, Pennsylvania, Maryland, and the District of Columbia, and parts of Kentucky, West Virginia and Virginia. This portion of the United States, only 12 per cent of its area, shelters nearly half the popu-

lation of the United States, and in 1944 turned out 73 per cent of its factory production. In the part of Canada mapped dwell almost two-thirds of the Dominion's total population, and in the area are situated nearly three-fourths of the nation's factories. The chart contains 10,437 place names, a greater number than has appeared on any other map published by the National Geographic Society.

Franklin L. Burr prizes, each carrying an award of $1,000, were granted to Dr. Lyman J. Briggs for outstanding work in directing field expeditions of the society; and to Dr. Thomas A. Jaggar for developing the first "duck" or amphibian mobile boat in 1927—a combination beach automobile and boat used in explorations near Pavlof Volcano in Alaska.

Five series of paintings made especially for reproduction in color in the *National Geographic Magazine* were published during the year. These were "Fairy Wrens of Australia," by N. W. Cayley; "Wildlife of Tabasco and Veracruz" (Mexico), by Walter A. Weber; "Totem-Pole Builders," by W. Langdon Kihn; "Victory's Portrait in the Marianas," by William F. Draper, and "Science Works for Mankind," by Thornton Oakley.

News Bulletins describing and giving background information in regard to places and areas affected by war activities and postwar reconstruction problems were distributed to more than 500 daily newspapers and approximately 200 radio stations. A special series of feature stories accompanied by maps "Orphan Areas of Europe," were published in 175 Sunday newspapers. Illustrated *School Bulletins* embodying information similar to that in the *News Bulletins* were sent each week of the school year to 35,000 classrooms.

Officers.—President and editor, Gilbert Grosvenor; vice president and associate editor, John Oliver La Gorce; secretary, Thomas W. McKnew; and treasurer, Robert V. Fleming.

GILBERT GROSVENOR,
National Geographic Society.

NATIONAL HOUSING AGENCY (NHA). The National Housing Agency (John B. Blandford, Jr., administrator) was established by executive order on Feb. 24, 1942. It consolidated in a single agency the non-farm housing functions of the federal government. Policies were centered in the office of the administrator and operations were carried out through three major constituent units: the Federal Home Loan Bank Administration; the Federal Housing Administration; and the Federal Public Housing Authority.

With the end of the war, the National Housing Agency immediately directed its efforts to stimulating the largest possible volume of home construction and combating inflationary price trends resulting from the acute shortage of housing throughout the country.

Wartime controls on building were removed almost entirely through the rescinding of the War Production Board's Conservation Order L–41 on Oct. 15, 1945. A substantial core of the home building industry had been kept active during the war and as early as 1944 had been enabled to start constructing houses approximating peacetime standards through a transitional program to relieve congestion, authorized as the job of housing war workers drew near completion.

From the long-range point of view, the NHA estimated that the country needs 12,600,000 new dwellings in the next 10 years to meet the needs of returning veterans, new families and families now living doubled up, and to replace one half of the clearly substandard housing, and that which becomes substandard by 1955.

The NHA reported that construction of a million and a quarter houses a year would mean an investment of 6 to 7 billion dollars annually and would provide about 4,000,000 jobs, off and on the building site. To achieve these ends, and to move toward a goal of a decent home for every American family, the NHA has proposed to Congress: (1) a broad program of technical research aimed at aiding the building industry to reduce costs; (2) help to local communities in studying and analyzing their own housing problems and mapping out programs to meet the needs of all income groups; (3) aids to communities, through long-term, low-interest rate loans, accompanied by subsidies if necessary, to clear slums and blighted areas and prepare the land for redevelopment at economically sound costs; (4) extension of the FHA insurance program to encourage the industry to produce housing, both for rent and sale, in the vast market represented by families of moderate incomes; (5) continued federal aid to communities to provide low-rent, public housing for families of very low incomes.

The War Job.—At the conclusion of its war job, the NHA had carried out a program to provide the necessary shelter at the right time and in the right places to meet the needs of some 4,000,000 migrating war workers and their families—an estimated 9,000,000 persons altogether.

Mobilization of existing housing under the leadership of the NHA and with the co-opera-

FINAL WAR HOUSING FIGURES
July 1940–August 31, 1945

	Completed	Under construction	To be started[1]
H–1: Housing for In-migrant War Workers			
Privately-financed (total)	1,009,001	26,487	20,702
New permanent units	810,711	25,671	18,580
Converted units	198,290	816	2,122
Publicly-financed (total)	832,241	22,004	4,978
New permanent dwellings	192,093	2,754	1,102
Demountable family dwellings	81,116	81	.....
Temporary family dwellings	261,902	15,927	947
Converted family dwellings	49,370	6	427
Dormitory units	168,367	1,493	890
Stop-gap	79,393	1,743	1,612
Total H–1 Private and Public	1,841,242	48,491	25,680
H–2: Housing to Relieve General Congestion			
Privately-financed dwellings	1,571	23,526	78,159
Publicly-financed dwellings	....	44	4,395
Total H–2 Private and Public	1,571	23,570	82,554
H–3:[2] Housing to Relieve Individual Hardship (All private)			
New construction	12,900	41,800	16,746
Conversion units	28,077	8,452	.....
Total H–3	40,977	50,252	16,746
Grand total—All War Housing: H–1, H–2, H–3	1,883,790	122,323	124,980

[1] "To be started" is housing which was approved as of V-J Day; Publicly-financed housing in this category was terminated and privately-financed quotas which had not been taken by builders were withdrawn. Publicly-financed war housing under construction was terminated where it was in the public interest.

[2] Approximately 16,000 veterans who wished to build their own homes had H–3 priorities as of August 31.

tion of local communities provided quarters for approximately 2,000,000 of these workers, 600,000 with families. Housing for the others had to be created by converting existing structures and by new building. This additional housing was programmed by the NHA and built in 1,300 localities scattered throughout the United States and its outlying territories. Private financing supplied 1,051,549 dwelling units at an approximate cost of $4,300,000,000, most of it covered by FHA war housing mortgage insurance, by Aug. 31, 1945. Public financing supplied 832,241 units at a cost of $2,600,000,000. The war housing program ended Aug. 31, 1945, and on Oct. 15, 1945, the WPB Order L-41, a war measure which restricted residential building to quotas established by the NHA, was lifted.

(2) Federal Home Loan Bank Administration

This administration (John H. Fahey, commissioner) directs the operations of the Federal Home Loan Bank System and the Federal Savings and Loan Insurance Corporation—two permanent agencies established to encourage home ownership and economical home financing, and to protect savings. Also under the supervision of the administration is the Home Owners' Loan Corporation, an emergency agency founded to aid distressed home owners and stabilize investments in residential real estate during the depression.

Federal Home Loan Bank System.—Authorized in 1932, the system provides a nation-wide home-mortgage credit reserve for thrift and home-financing institutions. Following the national pattern set up for commercial banks in the earlier inauguration of the Federal Reserve System, 12 regional Federal Home Loan Banks were organized, each to serve member home-financing institutions in its area by making both short and long-term advances to meet their needs. Through the regional banks, funds may be shifted from areas of abundant credit to areas of scarcity. Since the establishment of the banks, they have advanced $1,497,966,000 to their member institutions, of which $112,450,000 is outstanding.

On Aug. 31, 1945, member institutions of the system totaled 3,699. Of these, 3,659 were savings and loan associations, co-operative banks and homestead associations, including 1,469 Federal Savings and Loan Associations for whom membership is mandatory; 25 mutual savings banks and 15 insurance companies. Assets of member institutions amounted to $8,087,000,000 on Aug. 31, 1945.

Federal Savings and Loan Insurance Corporation.—In 1934 Congress provided an insurance program for investors in savings and loan associations and similar home financing institutions by creating the Federal Savings and Loan Insurance Corporation. Federal Savings and Loan Associations were required to be insured; insurance is optional for state chartered associations. The public confidence inspired by the fact that investments are so safeguarded has provided a stead flow of funds into insured savings institutions. About 4,300,000 investors in 2,475 savings and loan associations, with combined assets of nearly $5,700,000,000, are now protected by insurance up to $5,000 each.

Home Owners' Loan Corporation.—Over a period of three years following its creation in 1933, the Home Owners' Loan Corporation refinanced the mortgages on more than a million homes. Approximately $3,093,000,000 was loaned to home owners, an amount increased to $3,490,000,000 by later advances to borrowers and other disbursements by the corporation.

More than 73 per cent of this investment has been liquidated through collections on the corporation's loans and the sale of properties securing its loans which it was obliged to take over by foreclosure. Although the agency was forced to acquire a total of 198,127 houses, all but 663 had been sold by Aug. 31, 1945.

On that date HOLC was collecting on 515,684 accounts—391,732 those of original borrowers and the rest purchasers of acquired properties. Borrowers, plus purchasers of HOLC houses, had paid off their accounts in full, to a total of 488,109. More than 84,000 borrowers were making monthly payments in amounts greater than called for by their contracts.

(3) Federal Housing Administration

This administration (Raymond M. Foley, commissioner) was established in June 1934 by the National Housing Act "to encourage improvement in housing standards and conditions, to create a sound mortgage market, and to provide a system of mutual mortgage insurance" as part of the program to help revive the construction industry and the home financing market. The FHA does not itself make loans but insures private lending institutions against loss on residential loans meeting FHA standards.

The maximum FHA interest rate today is 4½ per cent plus the FHA insurance premium of ½ of 1 per cent, both calculated on annual outstanding balances. The premium is deposited in the Mutual Mortgage Insurance Fund.

Peacetime functions of the FHA are carried out under Titles I and II of the National Housing Act. Title VI was added as a war measure in March 1941 to help provide private housing, temporarily meeting emergency war housing needs but designed and built for permanence.

Title I provides for government insurance to lending institutions on loans for property improvement, alterations and repairs. Most of these loans are limited to a maximum amount of $2,500 and a maximum term of 3 years, and are repaid through monthly installments. However, as part of the war program, Congress authorized the FHA to increase from $2,500 to $5,000 the size of individual loans under this title, and with longer maturities, where operations would provide additional living accommodations for war workers through conversion of existing structures in areas specifically designated by the president. Under wartime conditions, many types of Title I loans were subject to Regulation W of the Federal Reserve Board requiring shorter maturities than the maximum permitted by the National Housing Act. This restriction was lifted in regard to property improvement loans in October 1945, when wartime construction controls also were removed.

Title II provides for insurance of mortgage loans ranging up to $16,000 made by approved private lending institutions, and for monthly amortization of the loan over periods as long as 20 years. Such loans may cover either new or existing housing, but generally may not exceed 80 per cent of the property valuation. Where loans are for not more than $5,400, however, and cover new single-family, owner-occupied homes built under FHA inspection, the mortgage may be made for 90 per cent of the appraised value and may have an amortization period as long as 25 years. On new owner-

occupied homes valued at not more than $10,000, mortgages may cover 90 per cent of the first $6,000 of valuation and 80 per cent of the remainder up to a maximum mortgage of $8,600, with a maximum term of 20 years. Under Title II, the FHA also provides mortgage insurance for large-scale rental projects.

Title VI was added to the National Housing Act by Congress in March 1941 specifically to assist in providing housing for war workers. Insurance activity under this title ended in August 1945. Most of FHA's operations during the war period were conducted under this new title. Mortgages insured under it were limited to a maximum of $5,400 on a single-family house; $7,500 on a two-family house; $9,500 on a three-family house; and $12,000 on a four-family house, and could cover up to 90 per cent of FHA valuation. Approximately 450,000 dwellings for war workers were provided by mortgages insured under this title, for which the total insurance authorization provided by Congress was $1,800,000,000.

From the start of the national emergency in July 1940 up to the surrender of Japan, approximately 750,000 new privately financed dwelling units were started under all FHA titles.

The long-term program of the FHA has enabled more than 1,600,000 families to build, purchase, or refinance their homes, or to rent modern quarters. FHA insurance on residential mortgages, excluding Title VI war housing, is now more than $5,133,000,000 and FHA repair loans under Title I, exceeding more than 5,000,000 in number, aggregate $1,903,733,000. As of Aug. 31, 1945, approximately $2,090,689,150 of the mortgage loans and more than $1,600,000,000 of the repair loans had been repaid through regular monthly payments or prepayments.

The FHA's credit experience under its mortgage insurance program has been outstanding. Out of 1,112,005 small homes financed with mortgages insured under Title II, only about 4,065, or 1 out of every 2,800, had been foreclosed and transferred to the FHA by Aug. 31, 1945. All but 7 of these properties have been resold. Since 1940, the FHA's income from its insurance premiums and investments has been sufficient to meet all operating expenses and to add substantial amounts to insurance reserves.

(4) Federal Public Housing Authority

This authority (Philip M. Klutznick, commissioner) has responsibility for federally administered public housing programs. Its major peacetime activity is the low-rent and slum clearance program transferred from the United states Housing Authority. It administers the programs of loans and annual contributions which enable the communities to provide decent housing at rents that low-income families can afford to pay.

Toward the end of 1945, while legislation formulating a national housing policy was pending before the Congress, the FPHA had four principal functions:

1. The management of public war housing during the period of reconversion and demobilization for distressed families of veterans and servicemen, for civilian employees of the War and Navy departments and of private industries completing war contracts, and for distressed families dislocated or displaced as a result of the war or demobilization.

2. The disposal of public housing determined to be surplus to the above needs.

3. The administration of the low-rent housing built before the war, and the conversion of war housing under the United States Housing Act to low-rent status.

4. The reactivation of deferred low-rent projects as building labor and materials become available.

Before the outbreak of war interrupted construction of low-rent housing under the United States Housing Act, local housing authorities in 173 communities built 334 projects containing 105,600 units for low-income families formerly living in slum dwellings.

The total development cost of the prewar low-rent projects was $483,000,000. Although the FPHA is authorized to lend up to 90 per cent of the development costs, it has actually supplied only two thirds of the long-term financing, as a result of the ability of local housing authorities to sell bonds on the private market at an interest saving.

To help keep rents within the means of low-income families, the FPHA makes an annual contribution, or subsidy, which for 1944 totaled $8,600,000, or $7.19 per dwelling unit per month. To June 30, 1945, federal subsidy payments totaled $43,409,000; this represents the entire cost to the federal government since the beginning of the low-rent program. In addition, the local community is required to make an annual contribution equivalent to at least one fifth of the federal contribution. This is normally done by exempting the projects from state and local taxes, as authorized by the United States Housing Act and state housing laws.

Housing Built or Authorized Under U. S. Housing Act as of August 31, 1945

	Projects	Dwelling units
Low-rent, pre-war (Public Law 412)	334	105,625
Low-rent for war use (Public Law 412)	49	11,930
Low-rent funds used for war housing (Public Law 671)	202	52,786
Deferred low-rent	164	23,225
Total	749	193,566

The major wartime function of FPHA was to provide publicly-financed housing for in-migrant war workers and their families; the FPHA being responsible for the construction and management of about four fifths of the total provided. The remainder was provided by other agencies, principally the War and Navy departments and the United States Maritime Commission. For the total public war housing program, some $2,600,000,000 was made available, all from Congressional appropriations or loan authorizations except $29,000,000 expended by the New York State Division of Housing.

Howard F. Vickery,
Director of Information, NHA.

NATIONAL INSTITUTE OF ARTS AND LETTERS. The National Institute of Arts and Letters was founded in 1898 by the American Social Science Association and incorporated by act of Congress in 1904, for the furtherance of literature and the fine arts in the United States. Its membership is limited to 250 native or naturalized citizens qualified by notable achievements in art, music and literature.

On May 18, the institute, together with the American Academy of Arts and Letters, held their fourth joint public ceremonial at which new members of both organizations were inducted (Frank W. Benson and Edward Hopper, painters; Jerome D. Kern, composer, as members of

the institute), medals awarded and fifteen $1,000 "Arts and Letters Grants" given. These grants are awarded from time to time to nonmembers to further creative work in the arts. The institute awarded its gold medal to Paul Manship, for sculpture, and its "award for distinguished achievement, given to an eminent foreign artist, composer or writer living in America," to Richard Beer-Hofmann. An exhibition of sculpture by Paul Manship, together with the works of newly elected members and the recipients of art grants was opened in the art gallery and continued through June 29. The institute continued its annual gift of $1,000 to the Edward MacDowell Association, Peterborough, N.H., of two National Institute of Arts and Letters fellowships of $500 each in memory of Edward MacDowell and Edwin Arlington Robinson.

The annual meeting of the institute took place on Dec. 19, 1945. Its present officers are: Arthur Train, president; Henry Seidel Canby, secretary; Philip James, treasurer; vice presidents: William Rose Benét, Leonard Bacon, William Adams Delano, Leon Kroll, Douglas Moore, and Edward McCartan.

The institute occupies the same building as the American Academy of Arts and Letters, 633 West 155th Street, New York City.

FELICIA GEFFEN,
Assistant to the President, American Academy of Arts and Letters.

NATIONAL INSTITUTE OF HEALTH. See PUBLIC HEALTH SERVICE, UNITED STATES.

NATIONAL JEWISH WELFARE BOARD (JWB). This organization is comprised of the Young Men's Hebrew Associations, the Young Women's Hebrew Associations, and the Jewish Community Centers. Constituted April 9, 1917, to serve United States Army and Navy personnel of the Jewish faith, it is also the authorized national Jewish body serving the armed forces in time of war. It was one of the seven national welfare organizations fulfilling this function during the First World War, and was a member organization of the United Service Organizations during the Second World War. It serves veterans in active association with the Jewish War Veterans of the United States, these two organizations constituting the sole Jewish agencies accredited to the United States Veterans' Administration.

The board is composed of 289 constituent local societies, of which 276 are located in the continental United States, eight in Canada, and one each in Honolulu, Havana, Mexico City, Sydney (Australia), and London. The board's constituent bodies in the United States are organized into the following regional sections: New England, New York State, New York Metropolitan, New Jersey, Middle Atlantic states, Midwest, Southern, and Pacific Coast Federation of Jewish Community Centers. The membership of the local organizations aggregates approximately 500,000. Thirty-eight national Jewish civic, cultural, fraternal, and religious organizations in the United States are affiliated with the board.

Officers of the board include Frank L. Weil, president; Lieut. Col. Lloyd W. Dinkelspiel, Irving Edison, Mrs. Walter E. Heller, Carl M. Loeb, Jr., Donald Oberdorfer, Walter Rothschild, Mrs. Felix M. Warburg, vice presidents; Max Wilner, treasurer; Joseph Rosenzweig, secretary; Ralph K. Guinzburg, assistant secretary; and Louis Kraft, executive director.

The organization maintains headquarters at 145 East 32d Street, New York 16, N.Y.

NATIONAL KINDERGARTEN ASSOCIATION. See KINDERGARTEN ASSOCIATION, NATIONAL.

NATIONAL LABOR RELATIONS BOARD. Ten years ago the National Labor Relations Act was passed by Congress and signed by President Roosevelt to insure American workers the right to organize and bargain collectively. The three-man board, in charge of administering this law, has two basic duties: first, the board conducts elections to determine freely chosen representatives for collective bargaining purposes. Second, the board protects employes from discrimination in any manner by the employer because of their union membership or activities.

This protection is provided in Section 8 of the act which enumerates five unfair labor practices an employer may not engage in to defeat his employes' right to self-organization. Specifically, an employer may not (1) interfere with, restrain, or coerce employes in their self-organization rights; (2) dominate, interfere with, or support the formation of any labor organization; (3) discriminate in any manner in regard to the hire or tenure of employment in order to encourage or discourage membership in a union; (4) discharge or otherwise discriminate against an employe because he has given testimony under the act; and (5) refuse to bargain collectively with the majority-designated representatives of his employes.

In the ten-year period, over 77,000 cases have been filed with the board. Of these, 37,300 involved unfair labor practice charges and 39,950 concerned questions of representation. The greater proportion of these, 62,000, were disposed of informally, without the necessity of hearings, decisions, or subsequent court litigation.

The board issued 11,000 formal decisions in the decade. Problems arising over representation issues were settled in 8,600 of these decisions, while the remaining 2,600 board orders concerned employer unfair labor practices.

Decisions and orders of the board are not self-enforceable. There are no penalties or fines. Either the company or the board may petition the appropriate circuit court of appeals for enforcement. Following this, either party may petition the Supreme Court for review. It is only after a court has upheld a board order and an employer has refused to comply that he may be held in contempt of court and subject to court penalties.

Since its existence, over 600 board cases have been litigated in the Circuit Courts of Appeals and the Supreme Court. In the circuit courts, 343 of the board's orders were upheld in full; 78 were set aside; and 167 were enforced with modification. Of the 55 cases that reached the Supreme Court the board's orders were upheld in 53 cases; in only 2, less than 4 per cent, were board orders set aside.

The American workers' and employers' response to the democratic election procedures of the board can be summed up thus: In the ten years of the board's operations, over 6,000,000 men and women, 85 per cent of those eligible to ballot, have voted in 24,000 board-conducted elections to select their representatives for collective bargaining purposes. Of these 24,000 elections, only 6,900 were held pursuant to board orders; the remainder, or 72 per cent of all elections, were based and conducted on the

complete agreement and mutual arrangement of the parties.

In 20,000 elections a majority of employes voted for a union. In 9,545 polls the CIO was successful in obtaining representation rights; AFL affiliates scored in 7,945; unaffiliated unions were chosen in 2,510; and no union was selected in the remaining 3,850 ballotings.

As for the 37,300 unfair labor practice charges filed in the ten years, 36,000, or 92 per cent of them, were disposed of informally. The greater number of these, 15,390, were settled by agreement between the parties, while 2,245 of them were closed after compliance with intermediate reports, board or court orders. Regional directors dismissed 5,785 cases; 305 were dismissed by intermediate reports and board or court orders; 11,870 were withdrawn by the parties; and the remaining 405 cases so disposed of were dismissed by the board for lack of merit or jurisdiction.

In remedying the unfair labor practices the board ordered the reinstatement of 300,000 employes, 30,000 of whom received back pay awards to compensate them for the losses in pay incurred as the result of employer discrimination. These back-pay awards totaled approximately $9,000,000. Over 2,000 company unions were ordered disestablished. In 5,000 cases collective bargaining was ordered, while in 7,000 cases notices of compliance with board decisions were directed to be posted. These posted notices informed employes that they were free to engage in collective activity without interference, as guaranteed by the act.

LOUIS G. SILVERBERG,
Director of Information, National Labor Relations Board.

NATIONAL PARK SERVICE. A bureau of the United States Department of the Interior established by act of Congress dated Aug. 25, 1916 (39 Stat. 535). Throughout the fiscal year ended June 30, 1945, the National Park Service, even though operating with a curtailed wartime staff and faced with the problem of caring for a greater number of visitors than during the preceding war years, continued to perform in a creditable manner its primary function of protecting, for present as well as future generations of Americans, the national parks and allied areas entrusted to its care.

Highlights of the Year.—One of the highlights of the 1945 fiscal year, from the standpoint of the National Park Service, was the presidential veto on Dec. 29, 1944, of H. R. 2241 to abolish the Jackson Hole National Monument, Wyo., an area established by presidential proclamation of March 15, 1943. In his memorandum disapproving this bill, the late President Franklin Delano Roosevelt pointed out that the effect of this bill would be to deprive the people of the United States of the benefits of an area of national significance from the standpoint of naturalistic, historic, scientific, and recreational values. He also stated that whatever reasonable objections existed to the continuance of the monument could be overcome without depriving the area of the protection to which it was justly entitled; that the proper remedy of the situation was not the undoing of what had been done but the making of such adjustments as might be appropriate to meet local conditions. As a result, no doubt, of the controversy over the establishment of this monument, several bills were introduced in the 79th Congress having for their purpose the modification or abolishment of the Antiquities Act of 1906 (34 Stat. 225), under which the president has authority, by public proclamation, to set aside as national monuments places of national interest from a scientific, historic, or archaeological standpoint to insure their protection. By the close of the fiscal year no Congressional action had been taken on these bills. Also pending in the 79th Congress on June 30, 1945, was a second bill, H. R. 2109, to abolish the monument, and H. R. 2691, to provide for the transfer of the public lands in the monument to United States Forest Service jurisdiction. Still another bill H. R. 1292, to provide for payments to Teton County, Wyo., and to continue grazing and other permits within the monument, likewise was pending in the Congress at the end of the year. In February 1945, the validity of the monument's establishment was upheld by the Federal District Court of Wyoming in a suit entitled *State of Wyoming* v. *Paul R. Franke.*

Other 1945 fiscal year highlights were the heightened interest of foreign governments in the organization and administration of the National Park System of the United States and in land conservation generally; the holding of a United Nations ceremony in the heart of the majestic redwoods of Muir Woods National Monument, Calif., to honor the memory of the late President Roosevelt; resumption of the night-time lighting of the Statue of Liberty, New York, one of the national monuments administered by the National Park Service; the sharp decline in applications for military and other wartime utilization of service-administered areas; reduction of surplus wildlife in Rocky Mountain National Park, Colo., and Zion National Park, Utah; and removal of provisions for special care of bison in Yellowstone National Park, Wyo.–Mont.–Idaho.

The National Park Service was requested by other federal agencies, notably the Bureau of Reclamation and the Corps of Engineers, War Department, to assist them in the investigation and planning of recreational facilities and in the administration of such facilities. There was also a resumption of co-operative planning relationships with the states under the provisions of the Park, Parkway, and Recreational Area Study Act of 1936 (49 Stat. 1894).

National Park System.—On July 14, 1944, Richmond National Battlefield Park, Va., scene of several battles fought in the War Between the States in the defense of Richmond, the Confederate capital, was established. Lands in this park, totaling 684.44 acres, were turned over to the federal government by the Virginia Conservation Commission.

Two units were eliminated from the National Park System. On March 1, 1945, Chattanooga National Cemetery, Tenn., was transferred to War Department jurisdiction, and Camp Blount Tablets National Memorial, Tenn., was given the status of a project when it was ascertained that requirements of the act of Congress of 1930 authorizing its establishment as a memorial have not been met.

At the close of the 1945 fiscal year, the National Park System contained 20,473,415.15 acres (exclusive of 611,082.50 acres of nonfederally owned lands), and included 27 national parks, 4 national historical parks, 84 national monuments, 11 national military parks, 1 national battlefield park, 7 national battlefield sites, 10 national historic sites, 9 national memorials, 11 national cemeteries, 3 national parkways, and the System of National Capital Parks, a total of 168 units.

Two of the 18 recreational demonstration areas

—Falls Creek Falls and Shelby Forest Recreational Demonstration Areas, Tenn.—which the service has been administering on a temporary basis were transferred to Tennessee for state park purposes, in accordance with the terms of the act of June 6, 1942 (56 Stat. 326), and some of the land in Otter Creek Recreational Demonstration Area, Ky., was transferred to the War Department as an addition to Fort Knox.

Use of National Park System by Visitors.—During the 1945 travel year (Oct. 1, 1944 to Sept. 30, 1945) visitors to the National Park System totaled 10,099,900. As during the preceding war years, no effort was made by the National Park Service to encourage travel to the areas administered by it and only limited accommodations were operated by concessioners to care for those persons able to take advantage of the opportunities for relaxation and inspiration which a visit to these areas afford. From the beginning of the travel year on Oct. 1, 1944, to the middle of August 1945, when word was received of the surrender of Japan and the cessation of gasoline rationing, travel to the National Park System increased approximately 13 per cent as compared with a similar period during the 1944 travel year. From mid-August through the Labor Day week-end throngs visited many units of the system, taxing to the limit the available overnight accommodations. Approximately 2,330,000 of the visitors who entered park and monument gateways in 1945 were members of the nation's armed forces.

Necrology.—The service was saddened by the deaths of the following men who contributed much to the furtherance and development of park ideals and policies: George B. Dorr, "father" of Acadia National Park, Me., and superintendent of that area from the time of its establishment in July 1916, as Sieur de Monts National Monument; Charles L. Gable, former supervisor of concessions; Edmund H. Abrahams, of Savannah, Ga., chairman of the Advisory Board on National Parks, Historic Sites, Buildings, and Monuments; and Col. David C. Chapman, who played a major role in the movement which led to establishment of Great Smoky Mountains National Park, Tenn.–N.C.

A. E. DEMARAY,
Associate Director, National Park Service.

NATIONAL PARKS, CANADIAN. See CANADA'S NATIONAL PARKS.

NATIONAL RECREATION ASSOCIATION, The. In 1945 the National Recreation Association started its 40th year of nation-wide service in bringing every child in America a chance to play and everybody in America, young and old, an opportunity to find the best and most satisfying use of leisure time. The war years brought to the recreation movement a tremendously increased public interest and demand for help all over the country in establishing new recreation programs and in extending existing programs and making them more effective. Services of the association, which is supported by voluntary contributions, is limited only to the extent of its financial resources.

Nearly 600 cities received periodic personal service by district field workers of the association in 1945. Leadership was provided to nearly 100 communities in conducting local community-wide training institutes for employed and volunteer workers in various types of recreational activities. About 50 cities received special field service in connection with their problems for meeting the recreation needs of their colored communities.

Again in 1945 more than 6,000 communities were helped through correspondence services of the association, and several thousand individuals were aided through personal consultation at its headquarters. More than 25,000 different requests for advice and material were cared for during 1945.

The interest of workers and management in the conduct of recreation activities for industrial workers continued during the year. Of particular interest was the request from smaller industries for help in meeting the needs of their workers as effectively as they are being met in some of the larger plants of the country. In view of this demand the association prepared and distributed a special article, *Recreation for Workers in Small Plants.* The association continued to assign a special worker full time to assist industries with the recreation problems of their workers. Several hundred plants were personally visited in about 100 different communities throughout the country.

The success of special publications for servicemen such as *Fun En Route* and *More Fun En Route* led to the preparation, on request, of a third booklet, *World of Fun.* Two million copies of this were printed and distributed to members of the armed forces. This brings the total number of booklets distributed without charge to members of the armed forces to twelve million copies.

During the year a survey was made of community recreation developments in 1944 and published as the *Recreation Year Book* in the July 1945 issue of *Recreation.* The results of this year book indicate a very substantial increase in recreation services during the two-year period since the last previous year book was published. The following are the outstanding figures of local recreation as reported by community recreation agencies in 1,426 communities:

Number of cities with play leadership or supervised facilities	1,426
Total number of separate areas reported	17,320
Total number of play areas and special facilities reported:	
Outdoor playgrounds	10,022
Recreation buildings and indoor recreation centers	4,536*
Bathing beaches	564
Day camps	342
Golf courses—9 hole	176
Golf courses—18 hole	253
Swimming pools—indoor	352
Swimming pools—outdoor	1,095
Total number of employed recreation leaders	35,503
Total number of leaders employed full time the year round	4,870
Total number of volunteers	47,288
Total expenditures for public recreation	$38,790,623

* Of this number, 1,813 were reported operated as, or containing, youth centers.

The conclusion of the war stimulated thorough study and reorganization of future programs and plans, and among the recreation problems of the future which require thorough consideration now are: sound local recreational planning for the development of new facilities and areas, and the extension and improvement of old areas; co-operative planning and joint consideration of new recreation areas and facilities by all agencies concerned, such as city recreation departments, park departments, schools, public housing authorities, and planning boards; adequate provision for recreation in all neighborhood redevelopment plans, new public housing units, new private real estate subdivisions and other areas newly opened for residential use; provision for adequate outdoor areas and for the full community use of school buildings in all school construction programs; consultation of recreation leaders by school and

housing architects and planners; full use of existing areas and facilities available for recreation use; employment of an adequate number of trained competent recreation leaders, with special emphasis on year-round full-time leadership in neighborhoods; participation of successful programs for helping returning veterans to be reabsorbed into normal leisure-time living in their home neighborhoods and communities; employment of returning veterans qualified for recreation leadership, with necessary care for the protection of personnel standards.

ARTHUR WILLIAMS,
National Recreation Association.

NATIONAL RESEARCH COUNCIL. See NATIONAL ACADEMY OF SCIENCES.

NATIONAL WAR LABOR BOARD. See WAR LABOR BOARD, NATIONAL.

NATURALIZATION. See IMMIGRATION, EMIGRATION AND NATURALIZATION.

NAURU. An isolated Pacific island 26 miles south of the equator at longitude 166° E., a mandate of the British Empire held jointly by Great Britain, Australia, and New Zealand. The area is 8.43 square miles, and the population on Jan. 1, 1942, numbered 2,672 (1,827 Nauruans, 193 other Pacific islanders, 584 Chinese, and 69 whites). An administrator named by Australia (Lieut. Col. F. R. Chalmers appointed Oct. 1, 1938) exercised all powers of government until the island was occupied by the Japanese late in August 1942. Revenue in 1941 amounted to £12,023 (£33,084 in 1939), and expenditure was £23,951. Sole economic value of Nauru lay in its deposits of phosphates, worked by the British Phosphates Commission, (having a British-Australian-New Zealand membership); exports in 1941 totaled 99,150 tons (808,400 tons in 1940), valued at £69,375 (£541,168 in 1940).

Nauru was discovered in 1798 by Captain Fearn, of the United States whaler *Hunter*, and by him named Pleasant Island; the name Nauru was resumed when it was annexed by Germany in 1888. An Australian force seized Nauru on outbreak of the First World War in 1914, and the island became a mandate on Dec. 17, 1920. Mining installations on Nauru were shelled by a German raider on Dec. 27, 1940, but life was otherwise uneventful in the Second World War until August 1942, when Japanese forces took possession of the island. There then ensued a horrifying sequence of murders and cold-blooded cruelties not exceeded anywhere during the war. On March 28, 1943, United States airmen bombed Nauru for the first time, and the following night, in reprisal, Captain Solda, commander of the Japanese garrison, beheaded Colonel Chalmers, the captive administrator, together with the medical officer and several officials. Two missionaries who had remained on the island were transferred to the Carolines, as well as 1,200 Nauruans (the Pleasant Islanders), including the head chief and most of the Nauruan women. Subsequently some 300 Japanese died of starvation, and when food supplies were completely exhausted, the survivors resorted to cannibalism, killing and eating their own countrymen and also Chinese laborers. Nauru was surrendered by the Japanese to Brig. J. R. Stevenson, of the Australian Army, on Sept. 14, 1945, and rehabilitation started.

NAVAL AVIATION. See AERONAUTICS.

NAVAL EDUCATION. The Allied victory has eliminated, probably for all time, the naval schools maintained by each of the former Axis powers: the German Naval School formerly located at Flensburg and the Imperial Naval Academy of Japan located at Etajima, with two smaller schools at Maidzuru and Tokyo. There are still seven major nations that maintain schools for the instruction of junior naval officers, all members of the United Nations and three of them members of the British Commonwealth of Nations. They are:

The United States.—The United States Naval Academy, founded in 1845, located at Annapolis, Md., is the largest institution of its kind in the world. Its four-year course of instruction leads to a B.S. degree and to the commission of ensign in the regular navy or of second lieutenant in the Marine Corps. The four-year course is supplemented by special training in aviation and in submarine duty for those graduates meeting the necessary qualifications. Most of its graduates serve in the line, with a few going to the Construction Corps, the Supply Corps, and the Marine Corps. The course of study at the academy includes English, American and European history, naval history, diplomatic history, one modern language (French, Spanish, Italian, German, Portuguese or Russian), government, mathematics, physics, chemistry, electrical engineering, marine engineering, seamanship, navigation, ordnance and gunnery, as well as physical training and hygiene.

Five midshipman appointments are allowed for each senator, representative, delegate in Congress, and the vice president, 5 for the District of Columbia and 25 are appointed each year from the United States at large. The law also authorizes the appointment of 100 enlisted men from the United States Navy and Marine Corps and 100 from the Naval Reserve and Marine Corps Reserve. For detailed information on additional sources of appointments and on entrance requirements, inquiries should be addressed to the Bureau of Naval Personnel, Navy Department, or the United States Naval Academy at Annapolis. Each candidate must be an unmarried male citizen of the United States not less than 17 years of age nor more than 21. There are three distinct methods of qualifying mentally for admission: (1) regular entrance examinations; (2) certificates from an approved secondary school plus a substantiating examination in English and mathematics; and (3) a properly attested certificate that he is or has been a regularly enrolled student in good standing without condition in a university, college or technical school accredited by the United States Naval Academy. (See also EDUCATION, REVIEW OF.)

Great Britain.—The Royal Naval College at Dartmouth trains about 65 per cent of the officers of the British Navy. It was founded in 1902. On passing their final examinations the students (known as cadets) are sent to sea for a further period of training before being rated midshipmen. The primary object of cadets and midshipmen serving afloat is to enable them to obtain experience in their duties as officers and to train them in watch-keeping, boat work and drill. They are given, too, a certain amount of practical and theoretical instruction. After serving for 20 months afloat the midshipmen are examined in seamanship. Those who pass are advanced to acting sub-lieutenant and are then sent home to take professional courses as a preparation for promotion to the rank of lieutenant. During the war cadets were promoted to midshipmen on passing their final examinations at Dartmouth.

Three classes enter the Royal Naval College annually—in January, May and September. The course consists of 11 terms of four months each, a total of three years and eight months. There are six major subjects taught at Dartmouth: English, French, mathematics, science, navigation and seamanship. In addition, in peacetime, about 33 per cent of the line officers receive training as "special entry cadets." These cadets enter the service either from the public schools or the merchant marine. These "special entry cadets" are given courses on a training ship in seamanship, navigation, pilotage, engineering, ship construction, torpedoes, gunnery, electricity, mathematics, French and physical drill. In addition about two per cent of the line officers come up from the enlisted ranks. Temporary officers of the R.N.V.R. are, without exception, drawn from the lower deck. These men receive a limited training on H.M.S. *King Alfred.* The average age of each applicant for the Royal Naval College at Dartmouth is only 13½. He must be 12½ years old at the time of application. The average age of "special entry cadets" is from 17 to 18 years. Both "special entry cadets" and cadets at Dartmouth must be native born of British or British-naturalized parentage and of pure European descent. Candidates must pass rigid physical and mental entrance examinations.

Canada.—The Royal Canadian Naval College is located at Royal Roads, on the southern end of Vancouver Island, British Columbia. It was re-established in 1942 after a lapse of twenty years since the closing of the old college known as the Royal Naval College of Canada. Its primary function is to train cadets who can aspire to and assume positions of leadership in Canadian naval affairs, a naval career not being obligatory of its graduates. Those of its graduates who do not enter the Royal Canadian Navy (permanent force) are under an obligation to accept a commission in the Royal Canadian Naval Reserve or the Royal Canadian Naval Volunteer Reserve should their services be required. During wartime all graduates are required to serve in some capacity in the naval service. In peacetime they may return to civil life. It is expected that at least thirty graduates will be selected for entry into the Royal Canadian Navy (permanent force). Those selected are promoted midshipmen, R.C.N. and go to sea for further training in the big ships of the Royal Navy or the Royal Canadian Navy. But those who have elected the Engineering Branch are sent to the Royal Naval Engineering College at Devonport, England, for advanced study. The remainder of the graduates who have elected to enter the Royal Canadian Volunteer Reserve (hostilities only) are promoted to midshipmen, R.C.N.V.R. and are appointed to the smaller ships of the Royal Canadian Navy or the Royal Navy. The length of the college course is two years. Three branches of the service are open to the cadets: The Executive Branch; the Engineering Branch; and the Accounting Branch. Normally about 80 per cent enter the Executive Branch, 10 per cent the Engineering, and 10 per cent the Accounting Branch. The course of study at the college includes English, a modern language (French, Spanish or German), history, mathematics, mechanics, physics, chemistry, engineering, seamanship, pilotage and navigation, gunnery, torpedo and signals. A candidate for entrance must be not less than 15 years, 10 months nor more than 18. He must be an unmarried British subject and his parents must have resided in Canada for two years immediately before his entrance. Each candidate must pass a written competitive examination early in May. To pass the candidate must gain at least 50 per cent in each paper and attain an average of not less than 60 per cent.

Australia.—The Royal Australian Naval College was opened in 1913 at Geelong, Victoria, Australia, but in 1915 it was transferred to Jervis Bay, New South Wales. In 1930 the college was moved again to Flinders Naval Depot, Victoria, where it is still operating. On entry the boy becomes a cadet midshipman and on graduation he becomes a midshipman. After some two or three years of sea service, in which he has shown proficiency, and having satisfied examiners in professional subjects, he is commissioned a sub-lieutenant. The four-year course of study comprises seamanship, engineering, navigation, mathematics, physics, chemistry, history, English, and French, together with considerable practical work in professional subjects. The cadet midshipman must reach the age of not less than 14 years during his first year in college and must be not older than 16. The entry to the college is open to all sons of natural-born or naturalized British subjects, subject to their being up to the educational standards and physically fit. Candidates are first of all required to pass a medical examination and a written examination in arithmetic, geometry, geography, English, history, and certain voluntary subjects. Those who successfully pass these examinations appear before a board of examiners who select the ultimate candidates. After leaving the Royal Australian Naval College the subsequent training examinations and training are generally carried out in the same manner as in the Royal Navy.

France.—The École Navale of France was maintained at Brest before the war. (The school is again in operation.) Each year the representatives of the Board of Naval Officers make tours of the 15 principal cities and conduct written examinations for the candidates. From these candidates the board makes its final selection. Between 80 and 100 candidates are chosen each year on the basis of these competitive tests. The candidate must be over 16 and not over 21 when he takes the entrance examination. He must also prove that he is of French birth or is a naturalized Frenchman. The course is two years in length. The subjects included in the curriculum are navigation, infantry and physical training, artillery and mechanical engineering, history, French composition, astronomy, algebra, naval architecture, geography, meteorology, optics, torpedoes, mechanics, compass, the tides, and thermodynamics. Young men admitted to the school must sign an enlistment in the navy for six years dating from their graduation from the school. After completion of one year's service and having passed their final examinations, they are given the rating of midshipman. Midshipmen who pass their final examinations on completion of their second year are appointed ensigns 2nd class. Courses at the academy include technical, literary, and scientific courses and foreign languages. Students who fail to pass final examinations and are not authorized to repeat the course are required to serve as enlisted men for one year unless they have completed one year of military service before entering the academy. Those who leave the school for any cause are required to complete, as enlisted personnel, the legal duration of the required service. About 90 per cent of the officer personnel of the French Navy are graduates of the École

Navale at Brest, 5 per cent come from the École Polytechnique and 5 per cent come up from the ranks. The two years of academic work are followed by one year's training on the *Jeanne d'Arc*, the French training ship.

The buildings of the present École Navale are located on the south shore of Brest harbor on the site of the former Lanveoc-Poulmic seaplane base. The professors and students are housed in these buildings. The length of the curriculum has been reduced since the war, a few theoretical courses such as astronomy being curtailed. But considerable time is devoted to the study of modern weapons, artillery, machine guns, radar, and to aviation. It is expected that all students will graduate with an observer's license and future classes with a pilot's license. A few yachts are available for learning the art of sailing and four corvettes for learning nautical routine. Three destroyers are also available for a summer cruise to some foreign country in the summer of 1946.

Classes at Brest started on May 15, a week after the surrender of Germany, and are scheduled to last 12 months but will probably be continued for 15 months. During their course students are sent to Paris three times for visits of 8 to 10 days. There they visit large industrial plants, public airports, the French Naval Museum, and are given lectures on colonial affairs. A preparatory examination was held in 1945 for recruiting 100 regular students for the École Navale. This class, after a two-month course at the training center of Pont Rean, on October 1, were assigned to warships due to leave for the Far East. On this cruise the students will serve as apprentice boatswains and signalmen. These cadets were scheduled to start regular courses at the École Navale at Brest on April 1, 1946.

During the war a naval academy was maintained at Casablanca which trained the classes graduated in 1943 and 1944. This school was the continuation of the one functioning at Portsmouth, England, in 1941. In the early part of the war a naval academy was maintained for a time at Toulon which in October 1943 was moved to Clairac in southwest France. The students of the 1942 class which were partially trained at Toulon were regrouped at Clairac. The students at this school joined the Maquis in August 1944 and fought against the German pocket on the Atlantic coast at Royan.

Italy.—The Italian Naval College was founded by Cavour in 1860 and has been located at Livorno (Leghorn) since 1881. The college was evacuated to Venice early in the Second World War with two sailing vessels, the *Christopher Columbus* and *Vespucci*. There were 700 cadets in Venice when the order came to sail for a southern Italian port with as much equipment as possible. A disused Fascist naval preparatory school was found and the boys were at work within 24 hours. There were in April 1945, 500 cadets at the school and a long waiting list for entries. The course consists of three years of academic training, supplemented, in peacetime, at the end of the first and second years by three-month practice cruises; at the end of the third year the cadets go to sea as "about-to-be-ensigns," and after 6 months are examined and commissioned. The cadets are divided into 3 groups each of which is given a separate course of instruction; about 70 per cent are educated as line officers; 15 per cent as engineer officers; and 15 per cent as ordnance officers. The cadet personnel is selected by the authorities of the academy itself. Candidates must be under 20 years of age, but there is no minimum age limit.

Russia.—The Soviet government has taken great pains to train its officers. According to the Administration of Naval Schools, there are 11 naval schools now open for the training of junior officers. These schools give courses in aviation, engineering, communications, artillery, and naval command. For the most part these schools are in Leningrad and Sevastopol, though there is a Pacific Naval College and a Naval Coast Defense School at Vladivostok, as well as a Caspian Naval College at Baku-Zykh. The candidates must be from 17 to 22 years of age, have had complete middle schooling—the 10-year school or its equivalent, except for the coastal artillery division which may accept candidates with 9 years of schooling. They must be physically fit, and must pass entrance examinations in Russian grammar and literature, algebra, geometry, trignometry, physics, mechanical drawing, and current events. In addition, candidates must bring recommendations from the Young Communist League or party organization, or from their factory or collective farm governing committee or school principal.

LOUIS H. BOLANDER,
Associate Librarian, U. S. Naval Academy.

NAVAL PROGRESS. The year 1945 saw the greatest of all wars pass into history with the Germans surrendering on May 8 and the Japanese on September 2. The navies of the United Nations played a vital role in the defeat of the Axis powers. Never before has the decisive effect of overwhelming sea power been better illustrated. A relentless sea blockade of both nations made actual exchange of war supplies between Germany and Japan virtually impossible. In the case of Japan, in the closing months of the war she was practically cut off from contact with her ill-gotten colonies and from her troops in outlying strongholds. At the same time Allied submarines played havoc with her remaining shipping.

Japanese Ships Lost.—Up to August 1, 1945, United States forces had sunk or damaged a total of 4,617 Japanese ships, or an average of 3 Japanese ships sunk or damaged every day for three and a half years. On Dec. 7, 1941, Japanese shipping tonnage was estimated at 7,000,000 tons. At the close of the war this had been cut down to less than 1,000,000 tons, and much of the latter was small coastal craft, unsuited for deep sea shipping.

German Ships Lost.—At the close of the war with Germany the British Admiralty and United States Navy Department disclosed jointly that at least 713 German submarines had been destroyed in the Battle of the Atlantic with "many others" destroyed by the Germans themselves in the final stages of the war. The British accounted for 462 U-boats and the United States Navy, in two years less of war, accounted for 151. British surface ships accounted for 205 of the total; aircraft 188; ships and aircraft jointly, 25; submarines, 25; bomb raids on U-boats afloat but in enemy ports, 8. American surface ships accounted for 30 submarines; aircraft, 77; ships and aircraft jointly, 13; submarines, 1; bomb raids on U-boats afloat but in enemy ports, 29. To the 613 thus accounted for there must be added 100 as being lost due to "mining" by Bomber Command, etc., the precise details of which are not yet available. The convoy system again demonstrated its efficacy for the Allies.

Allied Ships Lost.—On June 7, 1945 the United States Navy announced that less than one out of

every 1,000 ships convoyed by it were lost by submarines. From Dec. 7, 1941, to May 30, 1945, only 17 merchant ships were sunk and 15 damaged out of the 17,707 which sailed under protection of the United States Atlantic Fleet. But this report did not take account of the hundreds of unescorted vessels that fell victims to the U-boat. Three months after the opening of the war Winston Churchill, then first lord of the admiralty, announced that losses in convoys amounted to one in 750. In 1941 the ratio dropped to one out of every 181. Allied countermeasures advanced this ratio in 1942 to one loss for every 233, in 1943 to one in 344, and in the critical year of 1944, when our vast invasion armies in Europe were almost entirely dependent on seaborne supplies this ratio advanced to one loss for every 1,000. Nevertheless, the total Allied loss in shipping was exceedingly heavy, amounting to 4,770 ships, and a tonnage loss of 21,140,000, equal to the British Empire's entire prewar merchant fleet. German U-boats accounted for 2,770 of these ships, or about 58 per cent of the total; mines accounted for 520; surface craft for 330; aircraft for 750; while 400 were lost from various other causes. Over half of these shipping losses were British, amounting to 2,570 ships aggregating 11,380,000 tons; 538 ships were American; 1,172 were owned by our other Allies and 490 were neutral. These ships include Finnish, Hungarian, Italian and Japanese vessels lost before these countries went to war on the side of the Axis.

German Naval Developments.—The German Navy under Admiral Raeder and later under Admiral Doenitz were most resourceful in applying their scientific knowledge and ingenuity to devices that would enable them to win the Battle of the Atlantic. They developed the magnetic mine and the acoustic mine. They designed electrically propelled torpedoes with acoustic and magnetic control. They designed one-man submarines for attacks on Allied shipping where attacks by ordinary submarines would have been impracticable. They also designed surface torpedo boats manned by one man, who would guide his deadly craft near to his intended victims before abandoning ship. They invented the Schnorkel device, which consisted of a long tube passing from the submarine to the surface of the water to carry off noxious gases, enabling the U-boat to recharge its storage batteries without coming to the surface. They built large submarines to carry supplies to other submarines at sea, thus obviating the necessity of the dangerous, time-consuming voyage back to home bases. Under Admiral Doenitz the "wolf pack" system of submarine attack was organized, in which U-boats in large numbers made successive attacks over periods of days on large convoys.

Allied Countermeasures.—The Allies countered the magnetic mines with the "degaussing" belt. American overage destroyers, given to England in exchange for naval bases, were used in British convoy operations. Fast destroyer escorts, corvettes and frigates were built for patrol duty in the United States and Canada. Escort carriers were later developed giving convoys air cover in mid-Atlantic and in areas within range of land-based bombers. Radiolocation, or radar, revolutionized naval gunnery, or fire control. It made possible the detection of hostile submarines on the surface and the Asdic device detected those submerged. It aided in interception of enemy planes by shipborne aircraft, and provided a priceless navigational aid, enabling shipping to proceed in fog and darkness. Russian-bound convoys on the route north of Murmansk were subjected to the heaviest attack by land-based aircraft, surface craft and U-boats, yet 88 per cent of all such shipments reached their destinations.

In the Pacific the Japanese Navy was reduced to a point where single Allied task forces could move at will, even close to enemy home shores without fear of surface attack. To keep the fleet mobile, well furnished with supplies and in fighting trim over 300 advance bases were established all over the world. From these advance bases men, material and weapons were delivered direct to the fighting fronts. In excess of 100,000 tons of supplies were moved each day, sufficient to fill the holds of 16 Liberty ships. The supplies handled at these advance bases include 5,000,000 different elements, ranging from breakfast foods to floating drydocks. One of the greatest instruments in naval administration was developed from this conception of assembling advance bases. It was called the "Functional Component Catalogue." From its lists a commanding officer could order base equipment necessary to support any operation. It could vary from three tons of material to an Advance Base Unit of several hundred officers and thousands of men, including Seabees to build the base. This Advance Base Unit could perform voyage repairs and repair minor battle damage to a major portion of the fleet. Floating drydocks were built in several sections and were moved as close to the combat zone as possible. There the sections were welded together. The largest of these drydocks had a lifting capacity of about 100,000 tons. In one 8-month period these floating docks handled 176 ships.

British and American Co-operation.—In the vast Pacific operations the British and American navies acted as a team. To the Allied surface forces in the Pacific in 1945 the British contributed 3 battleships, the *Howe, King George V* and the *Duke of York;* 5 fleet aircraft carriers, the *Formidable, Illustrious, Indefatigable, Indomitable* and *Victorious;* 5 light cruisers and 12 destroyers, while their fleet in the Indian Ocean, known as the East Indies fleet consisted of two British battleships, the *Queen Elizabeth* and the *Valiant,* the French battleship *Richelieu,* the British battle cruiser *Renown;* 4 escort carriers; 6 cruisers; and 14 destroyers. Perhaps one of the most significant naval operations of the year was the transport of Allied troops, tanks, guns and supplies over the Rhine in March 1945 in 36-foot LCVP's (landing craft, vehicles and personnel) manned by personnel of the United States Navy. These landing craft had been trucked overland from the English Channel to the Rhine.

The United States Navy.—On Oct. 1, 1945 it was announced that in the Second World War the United States Navy lost 2 battleships (the *Oklahoma* and the *Arizona,* both at Pearl Harbor), 5 aircraft carriers, 6 escort carriers, 7 heavy cruisers, 3 light cruisers, 71 destroyers, 11 destroyer escorts and 52 submarines, a total of 157 first-line fighting ships. In addition, 539 smaller vessels were lost, including minelayers, minesweepers, subchasers, gunboats, Coast Guard vessels, seaplane tenders, motor torpedo boats, landing craft, tugs, tankers, transports, and miscellaneous craft. Thus the United States Navy lost a total of 696 ships in less than four years of actual warfare. Nevertheless it still can boast a combat force of over 1,500 fighting ships, the greatest assemblage of sea power in all history. On July

1, 1940, the navy had on hand 383 combatant ships, and 1,322 ships have been added to this force. Deducting the 157 announced combat ship losses, brings the total to 1,548 fighting ships. From this number must be deducted an undisclosed number transferred to Allied navies. There still remains a total of 223 ships on building schedule in navy and in private shipyards. This record five-year construction program includes 331 ships built in navy yards and 991 in private shipyards. Navy yard construction included 7 battleships, 1 heavy cruiser, 58 destroyers, 155 destroyer escorts and 98 submarines. There were built in private shipyards 3 battleships, 13, 27,000-ton aircraft carriers, 9, 10,000-ton carriers, 105 escort carriers, 2 large cruisers, 9 heavy cruisers, 33 light cruisers, 312 destroyers, 393 destroyer escorts and 112 submarines. The remaining unfinished construction program includes 2 battleships, 3, 45,000-ton aircraft carriers, 9, 27,100-ton carriers, 2, 14,500-ton carriers, 26 escort carriers, 1 large cruiser, 22 heavy cruisers, 19 light cruisers, 87 destroyers, 16 destroyer escorts and 36 submarines. The great bulk of these ships was scheduled for completion in 1945 and 1946 with a few of the heavier units carrying over into 1947. With the surrender of Japan and Germany it seems doubtful that all these ships will be completed. Included with the fighting ships on hand when war broke out were auxiliary ships of many types—tankers, oilers, ammunition ships, transports, etc. making a total of 7,695 ships of all classes. In five years this fleet has grown until it now comprises 100,000 ships, to make the mightiest navy the world has ever known.

On Sept. 19, 1945, Secretary of the Navy James V. Forrestal asked Congress for a postwar fleet which would have a three-way task: (1) defense of the United States; (2) defense of the Western Hemisphere; (3) maintenance of world peace by contributing a big carrier task force punch to the International Security Council.

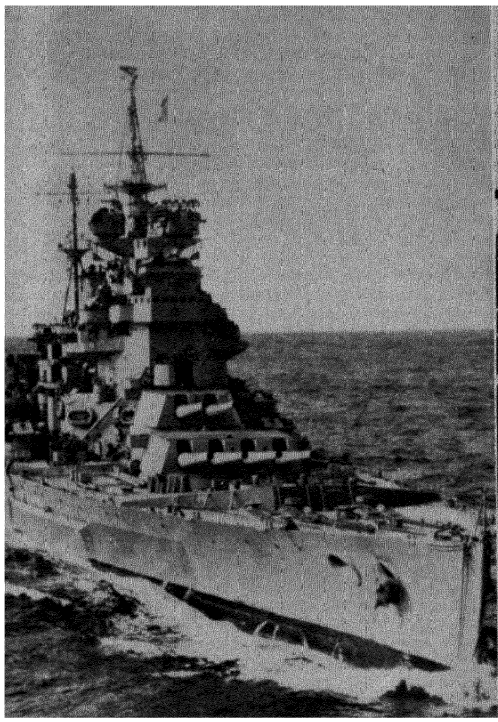
The secretary of the navy asked for an active fleet of about 28 per cent of the present force, no bigger than the pre-Pearl Harbor fleet, but with far superior fire power and aviation. It would include 11 modern battleships; 15 large aircraft carriers, including 3 of 45,000 tons; 21 escort carriers, 20 heavy cruisers, 29 light cruisers, 176 destroyers, 40 destroyer escorts and 90 submarines, plus the necessary auxiliaries and amphibious craft. The secretary plans for an "inactive" but battle-ready reserve of nearly 700 combat vessels, including 7 battleships, 22 aircraft carriers, 58 escort carriers, 33 cruisers, 191 destroyers, 256 destroyer escorts and 110 submarines. This reserve fleet would be kept ready to start firing at a moment's notice. It would be manned by only 40,000 men. To man the entire navy, "active and inactive," the secretary recommended a personnel force of 500,000, plus 100,000 marines. About 12,000 navy planes would be maintained, 8,000 of them in full active use.

Great Britain's Navy.—The Royal Navy now has 15 capital ships (14 battleships and the battle cruiser *Renown*) including H.M.S. *Vanguard* launched by Princess Elizabeth on Nov. 30, 1944; at least 13 fleet and light fleet aircraft carriers including the recently launched *Powerful* and *Leviathan*, over 40 escort carriers, 47 cruisers, over 300 destroyers, a still larger number of escort vessels (sloops, frigates, and corvettes), several fleet minelayers, and 128 submarines. On May 31, 1945, the Admiralty announced that losses entailed by the Royal Navy in its fight against the forces of Germany, Japan and Italy from Sept. 3, 1939 to V-E Day amounted to 3 battleships (the *Royal Oak, Prince of Wales* and *Barham*); 2 battle cruisers, (the *Hood* and *Repulse*); 8 aircraft carriers, 29 cruisers, 138 destroyers, 77 submarines, 16 armed merchant cruisers, 30 corvettes, 14 sloops, 11 frigates, 11 yachts, 1 monitor, 3 cutters, 7 gunboats, 242 trawlers, 6 minelayers, 61 minesweepers, 48 drifters, and 69 miscellaneous small craft and auxiliaries. In all, 776 ships of all categories were sunk, a tremendous fleet of fighting ships.

The Canadian Navy.—In September 1939 the Canadian Navy consisted of 16 vessels manned by 1,774 seamen. At the end of March 1945 its fleet consisted of 939 ships, of which 373 were combat ships. This fleet was manned by a force of 95,000 men at the end of the war with Germany. These ships sunk or helped to sink at least 68 enemy surface vessels, damaged 41 others, and captured 2 more. In addition they helped sink 23 enemy submarines and probably sank 8 others. During the course of the war the Royal Navy and the Royal Canadian Navy rendered each other mutual assistance. The mother country supplied Canada with one modern 8-inch cruiser of the "Fiji" class, one new 6-inch cruiser, 2 new fleet destroyers and 6 escort destroyers while large numbers of corvettes, minesweepers and frigates were built in Canada and transferred to the Royal Navy. Ships of the Canadian Navy operated during the past year with Admiral Sir Bruce Fraser's British Pacific Fleet. During the European phase of the war the Canadian Navy lost a total of 24 warships, including 6 destroyers with casualties of 2,300.

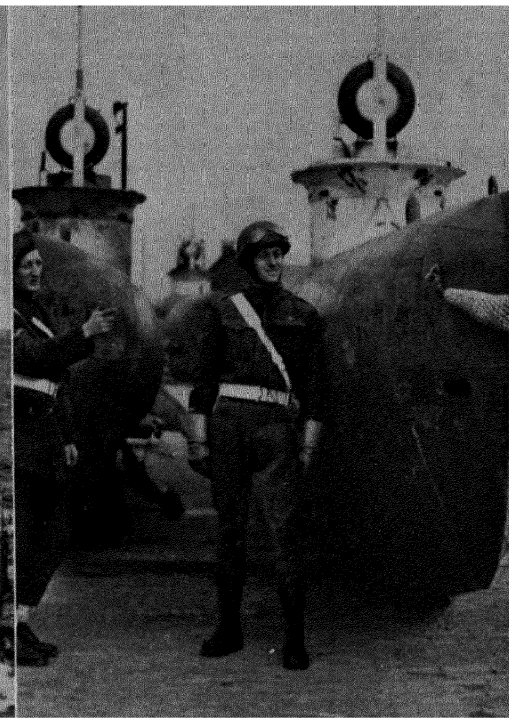
Germany's Navy.—The German Navy has ceased to exist. According to a British Admiralty statement issued May 16 the final disposition of the German Fleet was as follows: the 26,000-ton battleship *Gneisenau*, dismantled and sunk as a block-ship at Gdynia; the old battleship *Schleswig-Holstein* scuttled or used as a blockship at Gdynia; her sister ship the *Schlesien*, sunk at Swinemünde; the 19,250-ton aircraft carrier *Graf Zeppelin*, incomplete and damaged at Stettin; the 12,000-ton pocket battleship *Lützow* sunk in shallow water at Swinemünde; the 10,000-ton heavy cruiser *Admiral Hipper*, badly damaged in drydock at Kiel; the 10,000-ton heavy cruiser *Prinz Eugen* surrendered intact at Copenhagen on May 9; the 10,000-ton heavy cruiser *Seydlitz*, incomplete and blown up at Königsberg; the 6,000-ton light cruiser *Köln*, sunk in shallow water at Wilhelmshaven; the 6,000-ton light cruiser *Leipzig* badly damaged at the Danish port of Aabenraa; the 6,000-ton light cruiser *Nürnberg*, surrendered intact at Copenhagen; the light cruiser *Emden*, damaged and aground at Kiel. Besides these large ships, 24 destroyers, 12 torpedo boats, many U-boats and about 1,200 small craft, E-boats, R-boats, minesweepers, escort vessels, landing craft and armed trawlers were taken into custody at various Baltic ports. Three destroyers and two torpedo boats surrendered on May 9 to a British naval force at Copenhagen. Eleven destroyers were found at Kiel, and about a dozen scuttled U-boat, one destroyer, an escort vessel, four U-boats, and two minesweepers were found at Brunsbüttel. Two destroyers, 7 U-boats and 22 minesweepers and various small craft were found at Auxhaven. One destroyer and 12 minesweepers were found in good condition at Wilhelmshaven, but 24 U-boats had been scuttled. Distributed at several other ports were seven destroyers and eight torpedo boats. Nine sabotaged submarines were found at Bremen and seven submarines at

NAVAL PROGRESS



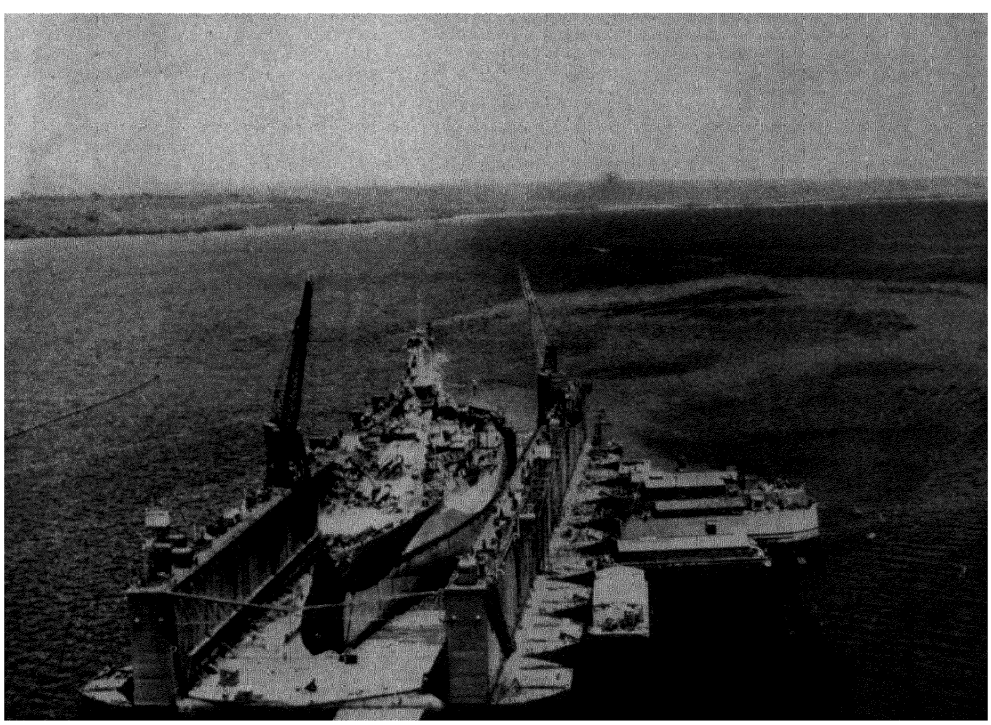
Courtesy British Information Service

First picture of H.M.S. "Duke of York" in the Pacific shows her at speed.



Canadian Army Overseas Photograph

One-man submarines, Germany's last "secret weapon" remained on docks at Ijmuiden, Holland.



Official U.S. Navy Photograph

Battleship finds plenty of room in this 10-section floating dry dock, an exclusive American development. Such docks played a vital role in the war in the far Pacific, saving valuable time for battle-damaged ships that would otherwise have to return many thousands of miles for repairs.

the island fortress of Helgoland. During the war the Germans used submarines of 230, 500, and 712 tons; the latter class took a leading part in raiding Allied shipping. In addition, they used three different types of midget submarines, the Biber, Molch and Seehund classes. The Biber is a six-ton, one-man submarine armed with two modified electric torpedoes. Propulsion is by a gasoline engine and an electric motor. The Molch is also a one-man submarine armed with electric torpedoes and electrically propelled. The Seehund is a two-man, 16-ton U-boat, armed with two 21-inch electric torpedoes fitted with magnetic pistols and net cutters, and propelled with a Diesel engine and an electric motor. Of these midget submarines 81 were either sunk, probably sunk or captured; 28 were possibly sunk. Since the capitulation of Germany, about 100 midget U-boats have been captured.

Italy's Navy.—Over 100 Italian warships served with the Allies during the last year of the war. They included the two modern 35,000-ton battleships, the *Vittorio Veneto* and the *Italia;* three old 23,600-ton battleships, the *Caio Duilio,* the *Andrea Doria* and the *Cesare;* 6 light cruisers; 4 Regolo class scout cruisers; at least 13 destroyers; 11 large torpedo boats; 24 submarines; a seaplane carrier, and other smaller units. In January 1945, five Italian warships, interned by Spanish authorities in the Balearic Islands, were released and steamed to Malta to surrender. They included one scout cruiser, 3 destroyers and a torpedo boat. Discipline in the Italian Navy is reported good and the morale excellent.

France's Navy.—It is now known that the old 22,000-ton battleship *Courbet* was sunk in June 1944 to help form a breakwater off the Normandy coast. She and her sister ship, the *Paris,* had fled to England in 1940, where the *Courbet* served as a training ship for the Free French naval forces, and the *Paris* was loaned to the Polish Navy as a receiving ship and barracks. More than 20 French warships have been repaired, refitted and modernized in United States navy yards. These include the battleship *Richelieu,* now serving with the British East Indies Fleet; the aircraft carrier *Béarn,* the cruisers *Georges Leygues, Montcalm, Emile Bertin* and *Jeanne d'Arc,* three destroyers and several submarines. Altogether 155 vessels have been transferred to the French Fleet by the United States Navy. This figure is made up of 6 destroyer escorts, 34 steel submarine chasers, 81 wooden minesweepers, 3 netlayers, 24 tugs, 3 tankers and 4 water barges. A British escort aircraft carrier, the *Biter,* built in the United States early in the war, has been transferred to the French Navy. This carrier is of about 10,000 tons displacement. Nearly 200 French fighting ships were in active service for the Allied nations when the war closed.

The Russian Navy.—The Soviet Navy is composed of four fleets, the Northern, Baltic, Black Sea and Pacific fleets. In addition there are flotillas on the Amur River, the Caspian Sea, the Danube, and the Dnieper rivers. The Soviet Baltic Fleet is believed to be made up of 1 battleship, 2 cruisers, 2 mine cruisers, 11 destroyers, and several submarines. During 1945 the Soviet Navy was very active in the Baltic Sea along the shores of which the German armies were steadily retreating. Motor torpedo boats, and submarines raised havoc with retreating Nazi troops and their supply lines. Several large units were also in action; the old 22,000-ton battleship *Oktiabryskaya Revolutsia,* the modern heavy cruiser *Petropavlovsk* shelled enemy lines along the Baltic. Altogether in the 37 months of war the Soviet Navy destroyed more than 2,000 warships and transports and 766 small craft. Soviet warships, the navy antiaircraft batteries and aircraft destroyed 6,829 enemy planes.

In part compensation to the Soviet Union for renouncing her share of the Italian Navy, it was announced by Prime Minister Churchill on June 5, 1944, that the following ships were transferred to the Soviet flag on May 30, 1944: By the United States, the light cruiser *Milwaukee* and a number of merchantmen; by Great Britain the battleship *Royal Sovereign* and nine overage destroyers obtained from the United States in exchange for naval bases: the *Brighton* (formerly *Cowell); Chester* (*Crowninshield*), *Churchill* (*Herndon); Georgetown* (*Maddox*), *Leamington* (*Twiggs*), *Richmond* (*Fairfax*), *Roxborough* (*Foote*), *St. Albans* (*Thomas*), *Lincoln* (*Yarnall*). The latter is not in operating condition but will be useful for supply parts. In addition the British have transferred to the Soviets three 730-ton submarines, the *Unbroken, Ursula,* and *Unison* and the 960-ton submarine *Sunfish.* The *Royal Sovereign* has been renamed the *Arkhangelsk,* and the *Milwaukee* the *Murmansk.*

The Japanese Navy.—The final remnants of the Japanese Navy have been surrendered and that navy as a fighting unit has ceased to exist. In the last week of the war Japan had just one undamaged major ship, the cruiser *Sakawa.* Other major vessels remaining on the Japanese register included the badly damaged 32,700-ton *Nagato,* three damaged aircraft carriers and two damaged cruisers. Between Dec. 7, 1941 and Sept. 2, 1945, 318 Japanese combatant ships were sunk or crippled. This loss included 12 battleships, 15 aircraft carriers, 4 escort carriers, 15 heavy cruisers, 1 old heavy cruiser, 20 light cruisers, 126 destroyers and 125 submarines. Of this total 98 Japanese warships were sunk by surface craft, 91 by submarines, and 87 by aircraft. Of the Japanese submarines sunk, 26 were sunk by American submarines. The technique employed is a closely guarded secret. At the close of the war 24 destroyers were still afloat and 22 submarines, including 6 U-boats turned over to Japan by Germany.

The Australian Navy.—The Australian Navy consists of 3 heavy cruisers, the *Hobart, Shropshire* and *Australia,* one light cruiser, the *Adelaide,* 11 destroyers, several corvettes, 2 sloops, 19 fleet minesweepers and a few miscellaneous craft. During the war Australian warships sunk or probably sunk 27 German, Italian and Japanese submarines. Her losses include 3 cruisers, the *Canberra, Perth* and *Sydney,* 4 destroyers, 2 sloops and 1 minesweeper.

LOUIS H. BOLANDER,
Associate Librarian, U.S. Naval Academy.

NAVY RELIEF SOCIETY. Incorporated in 1904, under the laws of the District of Columbia, the Navy Relief Society was organized to relieve personal distress in the families of naval personnel where the source of support had been removed by death. In later years this assistance was broadened to include the families of active personnel, as well as the men themselves regardless of rank, rate, or length of service. The society is not a government agency. Its affairs are controlled by a board of managers, consisting of not more than 15 members serving terms of three years each.

The primary responsibility of the society is to provide aid in time of emergency need for the

dependent widows, orphans, and dependent mothers of missing and deceased naval personnel, which includes personnel of the Marine Corps and the Coast Guard while acting as a part of the navy in the time of war. Coast Guard Welfare, with funds provided by the Navy Relief Society, administers to the needs of the personnel in that service. In addition, the society helps the man to provide hospitalization, medical and surgical care for his dependents, and gives financial aid, in time of emergency need, to him and his dependents. Wherever possible, the society assists dependents in meeting and solving their problems by counsel and in other ways not involving financial expenditure, such as assisting them to obtain pensions, six-month gratuities, allotments and other benefits. The funds of the society come from voluntary contributions and from the proceeds of entertainments and benefits, usually arranged by naval personnel. Loans, without interest, are made to men and their dependents for emergencies and are repaid by voluntary allotments. Gratuities are given if the investigation shows that repayment will work an undue hardship on the family. For the six-month period ending June 30, 1945, assistance involving no financial expenditure was rendered by the Navy Relief Society in 48,755 cases. Gratuities amounting to $617,470 were granted to 10,210 persons. Loans without interest were extended to 41,623 persons for a total of $2,207,801. On June 30, 1945, a total of $2,311,806 for 54,728 loans was carried forward.

Headquarters of the Navy Relief Society is located in Washington, D.C. There are 47 auxiliaries located at important navy yards and naval stations which are responsible for the work carried on within their respective areas.

R. M. BRAINARD,
Vice Admiral, United States Navy (Retired); Executive Vice President, Navy Relief Society.

NAZIMOVA, Alla, American actress: b. Yalta, Crimea, Russia, June 4, 1879; d. Hollywood, Calif., July 13, 1945. For more than 45 years one of the most distinguished actresses of the stage and screen, Alla Nazimova was particularly famous for her interpretation of roles in Ibsen's dramas.

After attending school in Switzerland, Nazimova returned to Odessa to study violin at the Philharmonic Music Academy there. At the age of 17 she renounced music in favor of acting and left for Moscow to study with Konstantin Stanislavski, eventually graduating into the Moscow Art Theater. In 1904 she joined the Paul Orlenev Company which was renowned on the Continent and played every principal city in Europe. Nazimova took the leading roles in the dramatization of Dostoevsky's *Brothers Karamazov*, Chirikov's (Tchirikov) *The Chosen People*, and dramas by Tolstoy. The company went to New York in 1905 and, although she could not speak a word of English, her talents were quickly recognized by the drama critics. Signing a contract with the Schuberts in June 1906, she made a successful English-speaking debut on November 13 of that year as Hedda Tesman in Ibsen's *Hedda Gabler*. She then acted in many plays by Ibsen and Chekhov. Nazimova eventually went to Hollywood where she became one of the most popular stars of the silent screen. Among the films in which she appeared were *War Brides, Salome,* and *The Madonna of the Streets*. Despite her success, she was not enthusiastic about her motion picture roles and returned to Broadway in 1928 to appear with Eva Le Gallienne's Civic Repertory Theater, giving one of her most outstanding performances as Mme. Ranevski in Chekhov's *The Cherry Orchard*. She later appeared in the Theater Guild productions of Turgenev's *A Month in the Country*, Eugene O'Neill's *Mourning Becomes Electra* (1931), and the dramatization of Pearl Buck's *The Good Earth* (1932), as well as in her own revivals of Ibsen's *Ghosts* (1935) and *Hedda Gabler* (1937). After a period of retirement, she returned to Hollywood and appeared in such films as *Escape, The Bridge of San Luis Rey, In Our Time,* and *Since You Went Away*. She became an American citizen in 1927.

NEBRASKA. West North Central state, United States; admitted to the Union March 1, 1867. Population (1940): rural, 801,686; urban, 514,148; total, 1,315,834. Land area, 76,653 square miles, divided into 93 counties. Chief cities, with 1940 populations: Omaha, 223,844; Lincoln, the capital, 81,984; Grand Island, 19,130; Hastings, 15,145.

Chief State Officers, 1945.—Governor, Dwight Griswold; lieutenant governor, Roy W. Johnson; secretary of state, Frank Marsh; treasurer, Carl G. Swanson; auditor, Ray C. Johnson; attorney general, Walter R. Johnson.

Judiciary.—Chief justice of the state supreme court, Robert G. Simmons; associate justices, E. B. Chappell, John W. Yeager, Adolph Wenke, Fred W. Messmore, Bayard H. Paine, Edward F. Carter.

Legislature.—The state legislature is a unicameral body of 40 members; it convenes biennially in odd years on the first Tuesday in January.

Education.—Public elementary schools (latest report, 1943–44 school year), 7,114; teachers, 9,227; pupils, 168,021; average yearly salary of elementary school teachers, $991. Public high schools (1943–44), 644; teachers, 3,276; students, 69,528; average yearly salary of high school teachers, $1,476. Teacher training is offered at a number of institutions in the state, including the University of Nebraska. Education courses are also offered in 162 high schools in the state. Schools receiving financial aid from the state: the University of Nebraska, and the four state teachers colleges at Peru, Chadron, Wayne, and Kearney. Education in Nebraska is compulsory for all children between the ages of 7 and 16, inclusive. Total receipts from state funds for elementary and secondary education in 1943–44, $1,272,335.72; total receipts from cities and counties, $23,236,536.98.

Finances.—Following is a statement of Nebraska's finances for the fiscal year 1943–44 (the last reported), furnished by Carl G. Swanson, state treasurer:

Balance in treasury, beginning of fiscal year 1943–44	$16,328,467.85
Receipts, 1943–44	41,495,511.13
Total	$57,823,978.98
Disbursements, 1943–44	39,754,057.22
Balance	$18,069,921.76
Less transfer to postwar construction fund	3,000,000.00
Balance in treasury, beginning of fiscal year 1944–45	$15,069,921.76

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	115,032	329,855	265,298
Oats (1,000 bu.)	42,078	35,586	74,522
Wheat (1,000 bu.)	44,332	35,944	86,366
Barley (1,000 bu.)	20,160	8,928	13,179
Rye (1,000 bu.)	3,879	3,444	4,472
Sorghums for grain (1,000 bu.)	1,786	2,244	1,344
Sugar beets (1,000 short tons)	810	490	708
Hay:			
Alfalfa (1,000 tons)	1,181	1,674	1,767
Tame (1,000 tons)	1,497	2,028	2,020
Wild (1,000 tons)	1,725	2,694	2,774
Beans, dry edible (1,000 bags)	321	588	720
Potatoes (1,000 bu.)	9,078	8,400	11,200
Grapes (tons)	1,620	1,300	1,700

NECROLOGY, 1945. Following is a list of prominent persons who died in 1945. Biographies of many of the persons listed will be found in this volume in their alphabetical order.

Abdullah, Achmed (84), short story writer, novelist, playwright: d. New York City, May 12.

Albee, Fred H. (68), orthopedic surgeon, served with Byrd Antarctic Expedition of 1928: d. New York City, Feb. 15.

Alwin, Karl Oskar (54), conductor, Opera Nacional, Mexico City; former director, Vienna State Opera: d. Mexico City, Mexico, Oct. 15.

Appleton, Robert (80), retired head of Robert Appleton Publishing Company: d. North Andover, Mass., Jan. 19.

Arosemena, Florencio Harmodio (72), president of Panama, 1928–31: d. New York City, Aug. 30.

Asquith, Margot. See Oxford, Countess of.

Aston, Francis William (68), British chemist noted for work with isotopes; Nobel Prize winner in chemistry, 1922: d. London, England, Nov. 21.

Atwood, Rt. Rev. Julius Walter (85), retired Episcopal bishop of Arizona: d. Washington, D.C., April 10.

Baetjer, Edwin G. (77), noted Baltimore lawyer, director of numerous companies: d. Baltimore, Md., July 20.

Balfour, Gerald William (91), second earl of Balfour: d. Whittingehame, Scotland, Jan. 14.

Bartók, Béla (64), noted Hungarian composer, outstanding specialist in musical folklore: d. New York City, Sept. 26.

Bascom, Florence (82), American geologist: d. Williamstown, Mass., June 18.

Baxter, The Rev. Edward J. (37), dean, Fordham University School of Adult Education: d. New York City, May 26.

Becker, Carl L. (71), professor emeritus of history, Cornell University; author of *Progress and Power, Modern Democracy*, etc.: d. Ithaca, N.Y., April 10.

Beer-Hofmann, Richard (79), Viennese poet, playwright: d. New York City, Sept. 26.

Behrendt, Walter Curt (60), authority on city planning and housing; member of Dartmouth College faculty: d. Norwich, Vt., April 26.

Bell, Sir Charles Alfred (74), Canadian author, diplomat, formerly with Indian Civil Service: d. Victoria, B.C., Canada, March 8.

Bellamann, Henry (63), musician, educator, author of novel, *King's Row*: d. New York City, June 16.

Benavides, Oscar (69), ex-president of Peru: d. Lima, Peru, July 2.

Benchley, Robert C. (56), writer, actor, and humorist: d. New York City, Nov. 21.

Bendix, Vincent (62), inventor, founder of Bendix Aviation Corporation; president, Bendix Helicopters, Inc.: d. New York City, March 27.

Berry, Dr. Edward Wilber (70), palaeontologist; dean, Johns Hopkins University, 1929–42: d. Stonington, Conn., Sept. 20.

Berry, George Ricker (80), Semitic scholar, archaeologist; professor emeritus, Colgate-Rochester Divinity School: d. Cambridge, Mass., May 24.

Bertram, Adolf Cardinal (86), anti-Nazi archbishop of Breslau: d. announced Pilsen, Czechoslovakia, July 12.

Beven, John L. (57), president, Illinois Central Railroad: d. Clinton, Ill., Jan. 3.

Bibesco, Princess Elizabeth (48), British author, daughter of England's first earl of Oxford and Asquith; wife of Prince Antoine Bibesco of Rumania: d. Bucharest, Rumania, April 7.

Bong, Maj. Richard (24), American air ace who downed 40 Japanese aircraft; holder of 26 decorations, including Congressional Medal of Honor: killed testing jet propelled fighter plane, Burbank, Calif., Aug. 6.

Bose, Subhas Chandra (48), Indian political leader who headed Japanese puppet government in India: killed according to Tokyo reports, in airplane crash in Formosa, Aug. 19.

Bourdet, Edouard (57), playwright, manager of Comedie Française, 1936–40: d. Paris, France, Jan. 17.

Boynton, George Rufus (90), portrait painter, known as "the painter laureate of army and navy life": d. New York City, Jan. 6.

Brandeis, Mrs. Alice Goldmark (79), widow of Associate Justice Louis Dembitz Brandeis of U.S. Supreme Court: d. Washington, D.C., Oct. 11.

Brann, Maj. Gen. Donald W. (49), deputy commander, U.S. forces in Austria: d. Austrian Tyrol, Dec. 29.

Braun, Brig. Gen. Gustav J., assistant commander, U.S. 34th Infantry Division: shot down in observation plane south of Bologna, Italy, March 17.

Braun, Max (52), Saar anti-Nazi socialist leader, editor: d. London, England, July 3.

Brewster, Brig. Gen. David L. S. (57), U.S. Marine Corps veteran of both world wars: d. Bethesda, Md., July 10.

Briscoe, Commander Benjamin (78), U.S. Naval Reserve officer, retired; pioneer of automobile industry: d. near Dunnellon, Fla., June 26.

Bryan, Charles W. (78), former governor of Nebraska; vice presidential nominee of Democratic Party, 1924; brother of the late William Jennings Bryan: d. Lincoln, Nebr., March 4.

Buckner, Lieut. Gen. Simon Bolivar, Jr. (58), Tenth Army commander on Okinawa: killed by Japanese artillery fire, Okinawa, June 18.

Bugbee, Dr. Henry Greenwood (63), retired director of urology, St. Luke's Hospital: d. New York City, Jan. 18.

Burgess, Charles Frederick (72), chemical engineer; former professor, University of Wisconsin: d. Chicago, Ill., Feb. 13.

Burgin, Leslie (58), former member of British Parliament; minister of supply, 1939–40: d. Hertfordshire, England, Aug. 15.

Burke, Stephen Patrick (47), professor of chemical engineering, Columbia University: d. New York City, March 10.

Burke, Thomas (59), British novelist, essayist: d. London, England, Sept. 22.

Burlew, Ebert Keiser (60), retired first assistant secretary, U.S. Department of Interior: d. Miami, Fla., Oct. 20.

Burton, Harry Edwin (76), Daniel Webster professor emeritus of Latin, Dartmouth College: d. Hanover, N.H., March 20.

Byas, Hugh (70), veteran newspaperman, authority on contemporary Japan; lecturer in foreign area studies, Yale University: d. New Haven, Conn., March 6.

Cabot, Hugh (74), former member of Mayo Clinic staff; ex-dean, University of Michigan Medical School: d. Ellsworth, Me., Aug. 14.

Calder, A. Stirling (74), sculptor, national academician: d. New York City, Jan. 6.

Calder, William M. (76), former U.S. Republican Senator from New York: d. Brooklyn, N.Y., March 3.

Calles, Gen. Plutarco (68), former president of Mexico: d. Mexico City, Oct. 19.

Camacho, Gen. Maximino Avila (52), brother of Mexico's president, member of his Cabinet: d. Pueblo, Mexico, Feb. 17.

Cannon, Walter Bradford (73), George Higginson professor emeritus, psychology, Harvard Medical School: d. Franklin, N.H., Oct. 1.

Cassel, Gustav (78), noted Swedish authority on monetary problems: d. Stockholm, Sweden, Jan. 14.

Cassirer, Ernst (70), visiting professor of philosophy, Columbia University; author: d. New York City, April 13.

Castle, Brig. Gen. Frederick W. (36), one of pioneers of U.S. Eighth Air Force: reported Jan. 18 to have been killed in action in Liège, Belgium, area, Dec. 24, 1944.

Caviglia, Marshal Enrico (82), army corps commander in First World War; Italian Minister of War, 1919: d. Finale Marina, Italy, March 22.

Chandler, Rear Admiral Theodore Edson (50), American naval officer: killed in action during battle for Luzon, Philippines, c. Jan. 9.

Chapman, Frank M. (81), dean of American ornithologists; long associated with American Museum of Natural History: d. New York City, Nov. 15.

Charlesworth, Hector W. (73), Canadian journalist, author and critic; first chairman, Canadian Broadcasting Commission: d. Toronto, Canada, Dec. 29.

Charlety, Sebastien (78), rector, University of Paris, 1927–37; historian, author: d. Chambery, France, Feb. 8.

Chauvel, Gen. Sir Henry (79), Australian cavalry leader; hero of Palestine campaign, First World War: d. Melbourne, Australia, March 4.

Chernyakhovsky, Gen. Ivan D. (37), Red Army tank commander whose Third White Russian Army was first to invade Germany: d. of wounds in East Prussia, Feb. 18.

Chester, Wayland Morgan (74), emeritus professor of biology, Columbia University: d. Hamilton, N.Y., Feb. 7.

Clark, Guy Gayler (62), dean, Cooper Union Art School from 1938: d. Upper Montclair, N.J., April 16.

Clark, Kenneth S. (62), American composer, editor: d. Princeton, N.J., Jan. 22.

Clarke, Herbert L. (77), famous cornetist with John Philip Sousa's band: d. Los Angeles, Calif., Jan. 31.

Clarke, John Hessin (87), retired justice, U.S. Supreme Court: d. San Diego, Calif., March 22.

Clendening, Dr. Logan (60), lecturer, writer on diet and health: committed suicide, Kansas City, Mo., Jan. 31.

Close, Ralph William (77), envoy to Washington from Union of South Africa, 1933–43: d. Capetown, South Africa, March 21.
Coborn, Charles (93), well-known British comedian; author of *The Man Who Broke the Bank of Monte Carlo* and many other popular songs: d. London, England, Nov. 23.
Coleman, Maj. Gen. Frederick W., governor, U.S. Soldiers Home, Washington; former head, Army's Finance Department: d. Washington, D.C., Jan. 5.
Condon, John F. (84), famous as "Jafsie," intermediary who delivered $50,000 ransom in Lindbergh kidnapping case: d. New York City, Jan. 2.
Consett, Rear Admiral Montagu W. W. P. (73), British naval representative, Interallied Committee of Versailles, 1920: d. Exeter, England, March 7.
Coolidge, John Templeman (89), author, artist and official of Boston Museum of Fine Arts and Boston Athenaeum Library: d. Boston, Mass., Nov. 16.
Corbett, Lamont S. (57), dean of men, University of Maine: d. Orono, Me., Feb. 8.
Crabtree, James W. (81), secretary emeritus, National Education Association: d. Washington, D.C., June 9.
Craig, Gen. Malin (69), former chief of staff, U.S. Army: d. Washington, D.C., July 25.
Cramer, Boris (84), Russian portrait painter: d. near Moscow, c. Feb.
Crasto, Franklin Purdy, Jr. (63), librarian, Academy of Arts and Letters, New York, 1922–41: d. St. Petersburg, Fla., Jan. 6.
Craven, Frank (65), actor, playwright, director: d. Beverly Hills, Calif., Sept. 1.
Cret, Paul P. (68), architect, designer of Folger Shakespeare Library, Washington, D.C., and many other well-known buildings: d. Philadelphia, Pa., Sept. 8.
Crewe, Robert Offley Ashburton Crewe-Milnes, Marquis of (87), Liberal Party leader in the British House of Lords for many years; former war secretary, secretary for India, lord privy seal: d. Leatherhead, Surrey, England, June 20.
Crimont, The Most Rev. Joseph R. (87), bishop of Alaska; one of oldest members of Roman Catholic hierarchy in America: d. Juneau, Alaska, May 20.
Crow, Carl (61), author of many books on the Orient, including *Four Hundred Thousand Customers* (1937); *The Chinese Are Like That* (1939); and *China Takes Her Place* (1944): d. New York City, June 8.
Cummings, Rev. William (43), Catholic priest credited with having coined phrase "there are no atheists in foxholes," during field sermon in Bataan: d. in Japanese prison ship early in 1945.
Curtin, John (60), prime minister of Australia, head of Australia's Labor Party after 1935: d. Canberra, Australia, July 5.
Curtin, Very Rev. Msgr. Raymond (50), chancellor, Diocese of Buffalo (N.Y.) since 1931: d. Buffalo, N.Y., March 29.
Cushing, M. Gertrude (74), former chairman, department of romance languages, Mount Holyoke College: d. Holyoke, Mass., March 7.

Dabney, Charles William (89), former president, University of Cincinnati: d. Asheville, N.C., June 15.
Dammann, Rev. Mother Grace Cowardin (72), president, Manhattanville College, New York City: d. New York City, Feb. 13.
D'Antalffy, Dezso (59), Hungarian-born composer, and formerly organist of New York Philharmonic-Symphony Orchestra: d. Denville, N. J., April 29.
Darby, Col. William Orlando (34), organizer of First American Ranger Battalion: killed in action in Italy, c. April 30.
Davis, Dwight F. (66), secretary of war during Coolidge administration; donor Davis Tennis Cup: d. Washington, D.C., Nov. 28.
Davis, Fay (72), American-born actress, famous in Great Britain as one of leading actresses of Victorian and Edwardian eras: d. Exmouth, Devonshire, England, Feb. 26.
Davis, John Warren, Sr. (77), retired judge, Third U.S. Circuit Court of Appeals, Philadelphia: d. Norfolk, Va., Feb. 21.
Dawson of Penn, Lord (79), physician in ordinary to Kings Edward VII, George V, George VI: d. London, England, March 7.
De Casseres, Benjamin (72), author, columnist, editorial writer: d. New York City, Dec. 6.
de Forest, Alfred V. (55), member of department of mechanical engineering, Massachusetts Institute of Technology: d. Marlboro, N.H., April 5.
Delabarre, Edmund Burke (81), professor emeritus of psychology, Brown University: d. Providence, R.I., March 16.
Deland, Mrs. Margaret W. (87), novelist, among whose books were *Old Chester Tales* and *John Ward, Preacher*: d. Boston, Mass., Jan. 13.
de Moor, J. M. (49), Netherlands jurist, maritime authority, delegate to United Nations War Crimes Conference: d. London, England, May 30.
Dentz, Gen. Henri-Fernand (73), former French high commissioner to Syria who was condemned to death by the High Court and saved through commutation by Gen. Charles de Gaulle: d. Fresnes, political prison of Paris, Dec. 13.
Depasta, George S. (61), minister of Greece to Canada; former Greek consul general at Chicago: d. Ottawa, Ont., Feb. 14.
Dick, Charles (87), former U.S. Senator from Ohio: d. Akron, Ohio, March 13.
Donnay, Maurice (86), French writer, member of French Academy: d. Paris, France, March 31.
Donoghue, Steve (60), noted British jockey: d. London, England, March 23.
Doriot, Jacques, fugitive French collaborationist, founder of pro-Nazi French People's Party: killed in Allied air attack on southwestern Germany, c. Feb.
Douglas, Lord Alfred (74), British author, poet, friend of Oscar Wilde: d. Lancing Sussex, March 20.
Dreiser, Theodore (74), American novelist: d. Hollywood, Calif., Dec. 28.
Driscoll, Very Rev. Francis A. (55), former president, Villanova College: d. West Palm Beach, Fla., Feb. 6.
Dubin, Al (54), song writer: d. New York City, Feb. 11.

Easley, Brig Gen. Claudius M. (53), assistant commander, 96th Infantry Division: killed in action on Okinawa, June 19.
Ebeling, Herman Louis (87), emeritus professor of Greek, Goucher College: d. Baltimore, Md., April 2.
Ebersole, J. Franklin (60), professor of banking and finance, Harvard University: d. Belmont, Mass., June 24.
Edsall, David Linn (76), dean emeritus, Harvard Medical School and Harvard School of Public Health: d. Cambridge, Mass., Aug. 12.
Edwards, Gus (66), veteran song writer, actor, movie director: d. Hollywood, Calif., Nov. 7.
Ekman Carl Gustaf (72), former premier of Sweden: d. Stockholm, Sweden, June 15.
Elles, Gen. Sir Hugh (65), commander, British Tank Corps in First World War: d. London, England, July 11.
Emery, Brig. Gen. Ambrose R. (62), former commander, infantry center, Camp Wheeler, Ga.: d. Washington, D.C., Nov. 28.
Ervin, Joseph Wilson (44), Democratic representative in Congress from North Carolina: committed suicide, Washington, D.C., Dec. 25.
Eurich, Dr. Frederick W., noted anthrax specialist: d. Southampton, England, Feb. 16.
Evans, Edward S. (66), industrialist, inventor, financier: d. Detroit, Mich., Sept. 6.
Exmouth, Viscount of (Charles Ernest Pellew) (82), one-time assistant professor of chemistry, Columbia University, New York: d. London, England, June 7.

Faelten, Otto (61), architect, professor of design, University of Pennsylvania, School of Architecture: d. Hartsdale, N.Y., April 23.
Fairfax, Beatrice (70), (real name, Mrs. Marie Manning Gasch); newspaper columnist famed for advice to the lovelorn: d. Washington, D. C., Nov. 28.
Farjeon, Herbert (58), playwright, drama critic, well known in Britain and United States: d. London, England, May 8.
Farrand, Max (76), American library director, former professor of history at Wesleyan, Stanford, Cornell, and Yale: d. Bar Harbor, Me., June 17.
Favorsky, Alexei (86), Russian scientist regarded as nation's "dean of modern organic chemistry": d. Leningrad, Russia, Aug. 6.
Fenneman, Nevin M. (79), physiographer, geologist; founder and professor emeritus, Cincinnati University's geology department: d. Cincinnati, Ohio, July 4.
Ferdinand (84), former king of Bulgaria, who abdicated on Oct. 3, 1918, after Bulgaria's defeat in First World War: reported to have been killed in road accident while fleeing from Slovakia to Austria, April 23.
Ferdinand, Prince Louis of Bourbon-Orleans (56), member of former royal houses of France and Spain: d. Paris, France, June 22.
Ferguson, John Calvin (79), founder, first president of Nanking University in China: adviser to several Chinese governments; authority on Chinese art: d. Clifton Springs, N.Y., Aug. 3.
Ferris, Scott (67), former Congressman from Oklahoma's 6th District: d. Oklahoma City, Okla., June 7.
Field, Sir Frederick Laurence (73), admiral of the fleet and first sea lord of British Admiralty, 1930–33: d. York, England, Oct. 24.
Fischer, Emil S. (79), one of America's foremost authorities on China: d. Tientsin, China, prisoner of Japanese, Feb. 21.
Fischer, Hans (63), leading German organic chemist; winner in 1930 of Nobel Prize in chemistry for discovery and isolation of hematin (coloring matter of red corpuscle): d. reported from Berne, Switzerland, April 6.
Fiske, Rev. Dr. George Walter (73), educator, author, dean emeritus, Oberlin College Graduate School of Theology: d. Framingham, Mass., Oct. 10.
Fleming, Sir Ambrose (95), electrical physicist, engineer, inventor: d. Sidmouth, Devon, England, April 19.

Foster, Edna Abigail, former editor, *Household Magazine;* former associate editor, *The Youth's Companion:* d. Boston, Mass., July 11.
Foster, Thomas L. (93), one-time butcher boy who became one of Toronto's wealthiest property owners, mayor of Toronto, and member of Parliament: d. Toronto, Canada, Dec. 10.
Fouilhoux, J. Andre (65), architect who designed Trylon and Perisphere at New York World's Fair: killed in fall from roof, Brooklyn, N.Y., June 20.
Fourest, Georges (77), French poet, author: d. Paris, France, Jan. 27.
Fox, Dixon Ryan (57), president, Union College: d. Schenectady, N.Y., Jan. 30.
Frank, Bruno (58), expatriated German author of many novels, including *Lost Heritage, The Man Called Cervantes:* d. Beverly Hills, Calif., June 20.
Fraser, Leon (55), president, First National Bank of New York; former president, Bank for International Settlements: committed suicide, North Granville, N.Y., April 8.
Friday, David (68), consulting economist; former president, Michigan Agricultural College: d. Washington, D.C., March 16.
Fullerton, Hugh S., Sr. (72), noted baseball writer who first "broke" the "Black Sox" scandal of 1919 world series: d. Dunedin, Fla., Dec. 27.

Gaffney, T. St. John (80), U.S. Consul General in Munich during First World War: d. Summit, N.J., Jan. 14.
Gage, George R. (55), professor of botany, Vanderbilt University: d. Nashville, Tenn., Aug. 18.
Garran, Frank W. (51), dean, Thayer School of Engineering, Dartmouth College: d. Hanover, N.H., Sept. 19.
Garrison, S. C. (57), president, George Peabody College for Teachers, since 1938: d. Nashville, Tenn., Jan. 18.
Garvie, Rev. Dr. Alfred Ernest (84), theologian, Congregationalist leader: d. London, England, March 7.
Gasch, Mrs. Marie Manning. See Fairfax, Beatrice.
Gaul, Harvey B. (64), organist and composer: d. Pittsburgh, Pa., Dec. 1.
Gay, Maisie (62), English actress: d. Kingstown, England, Sept. 13.
George, David Lloyd. See Lloyd-George, David.
Gie, Stephanus F. N. (60), minister of Union of South Africa to United States: d. Washington, D. C., April 9.
Gilmore, Charles Whitney (71), international authority on reptiles, fossils; curator, department of vertebrate paleontology, National Museum: d. Washington, D.C., Sept. 27.
Glasgow, Ellen (71), author of many novels, including *In This Our Life,* Pulitzer Prize winner, 1942: d. Richmond, Va., Nov. 21.
Glass, Powell (58), associate publisher, general manager, the Lynchburg *News* and the Lynchburg *Daily Advance;* president, Virginia Press Association; son of Senator Carter Glass: d. Richmond, Va., July 8.
Goddard, Robert H. (62), pioneer in rocket propulsion, chief of navy research on jet propelled planes: d. Baltimore, Md., Aug. 10.
Goebbels, Paul Joseph (47), German propaganda chief during Hitler régime: reported May 2 from Moscow to have committed suicide in Berlin.
Goodrich, Louis (80), American actor, playwright, novelist: d. Hampshire, England, Jan. 30.
Gorrell, Col. Edgar Staley (54), president, Air Transport Association of America, aviation pioneer: d. Washington, D.C., March 5.
Goschen, Sir Harry (79), former chairman, British Bankers' Association: d. Harlow, Essex, England, July 7.
Gosselin, Mrs. Milena Pavlovitch-Barilli (34), Yugoslav artist; cousin of King Peter II of Yugoslavia: d. New York City, March 6.
Gould, Kingdon (58), American financier: d. New York City, Nov. 7.
Grant, Heber J. (88), president, Latter-Day Saints (Mormon) Church: d. Salt Lake City, Utah, May 14.
Gray, Howard Levi (71), professor emeritus of history, Bryn Mawr College: d. Canajoharie, N.Y., Sept. 15.
Green, Mrs. Florence Topping (63), American artist: d. Long Branch, N. J., May 24.
Greim, Field Marshal Gen. Robert Ritter von, successor to Herman Goering as head of German Luftwaffe: commits suicide in Salzburg Hospital, May 24.
Griffith, Benjamin W. (68), Bucknell University athletic director; one of nation's best known collegiate sports executives: d. Williamsport, Pa., March 18.

Hacha, Emil (73), former puppet president, Czechoslovak Republic: d. Prague, Czechslovakia, June 27.
Hall, Clifton Rumery (60), member of history faculty, Princeton University: d. Princeton, N. J., April 19.
Halsey, Col. Edwin A. (63), secretary, U.S. Senate since 1933: d. Washington, D.C., Jan. 29.
Hamilton, Elwood (62), judge, Sixth U.S. Circuit Court of Appeals: d. Louisville, Ky., Sept. 19.
Hanson, Victor H. (69), chairman, board of Birmingham News Company, publishers; former president, Southern Publishers Association: d. Birmingham, Ala., March 7.
Harmon, Lieut. Gen. Millard F., commander, Strategic Air Force, Pacific Ocean areas: reported missing in overdue plane, March 2.
Hazard, Caroline (88), president, Wellesley College, 1889 to 1910: d. Santa Barbara, Calif., March 19.
Hein, Carl (81), director, New York College of Music: d. New York City, Feb. 27.
Hillman, Harry L., track coach, Dartmouth College: d. Hanover, N.H., Aug. 9.
Himmler, Heinrich (44), German minister of interior, Gestapo chief; captured by British in Lueneburg, near Bremen, Germany: committed suicide by swallowing poison, May 24.
Hitler, Adolf (56), German führer: reported on May 2 from Moscow to have committed suicide in Berlin.
Hoffman, Gustave Adolph (76), artist, etcher: d. Rockville, Conn., Aug. 30.
Holabird, John Augur (59), architect, designer of many of Chicago's most important buildings: d. Chicago, Ill., May 4.
Holgate, Thomas F. (86), former acting president, later president ad interim, Northwestern University: d. Evanston, Ill., April 11.
Holsti, Rudolf (62), acting professor, political science, Stamford University; former foreign minister of Finland: d. Palo Alto, Calif., Aug. 3.
Hopekirk, Helen (89), (Mrs. William A. Wilson), concert pianist, composer: d. Cambridge, Mass., Nov. 19.
Horwood, Sir William Henry (82), chief justice of Newfoundland, administrator in governor's absence: d. St. John's, Newfoundland, April 7.
Howell, William H. (85), director emeritus, Johns Hopkins University School of Hygiene: d. Baltimore, Md., Feb. 6.
Howland, William (74), former head, music department, University of Michigan, founder, Detroit Institute of Musical Arts: d. Detroit, Mich., May 2.
Hughes, Mrs. Antoinette Carter (81), wife of retired Chief Justice of the United States Charles Evans Hughes: d. Washington, D.C., Dec. 6.
Hughes, Hatcher (64), playwright, Columbia University professor of English: d. New York City, Oct. 19.
Hughes, Mrs. Rupert (42), writer under name of Patterson Dial; wife of writer-lecturer Rupert Hughes: d. Hollywood, Calif., March 23.
Huizinga, Johan (72), Dutch historian; author of *The Waning of the Middle Ages; Erasmus;* anti-Nazist: d. Holland, March 22.
Hunter, Glenn (49), stage and screen actor, best known for his portrayal of the title role in *Merton of the Movies* soon after the First World War: d. New York City, Dec. 30.
Hutchison, George W. (58), secretary, National Geographic Society: d. Washington, D.C., March 24.

Immel, Ray Keeslar (60), dean of speech, University of Southern California: d. Inglewood, Calif., April 11.

Jackson, Brig. Gen. William Payne (77), U.S. Army officer, retired: d. San Francisco, Calif., Jan. 13.
Jelliffe, Smith Ely (78), neuropsychiatrist, editor, author, educator, lecturer; contributor to ENCYCLOPEDIA AMERICANA: d. Huletts Landing, N.Y., Sept. 25.
Jencks, Millard H. (63), textbook publisher; president, St. Lawrence University: d. Canton, N.Y., Feb. 14.
Jenkins, Rev. Dr. Burris A. (75), former president, Kentucky University: d. El Centro, Calif., March 13.
Johnson, Eldridge Reeves (78), founder and until 1927, president of Victor Talking Machine Company which he sold for $40,000,000: d. Moorestown, N.J., Nov. 14.
Johnson, Hiram Warren (78), Republican Senator from California, former governor of California, vice presidential candidate with Theodore Roosevelt, 1912: d. Bethesda, Md., Aug. 6.
Johnson, William E. ("Pussyfoot") (82), prohibition crusader: d. Binghamton, N.Y., Feb. 2.
Jones, Lewis R. (80), plant pathologist, botanist: d. Orlando, Fla., March 31.
Jones, Dr. Louis Cleveland (75), industrial chemist; retired director, Stamford laboratories of the American Cyanamid Company: d. Greenwich, Conn., Dec. 29.

Kabakjian, Dicran H. (70), professor emeritus, physics, University of Pennsylvania: d. Lansdowne, Pa., Nov. 13.
Kaiser, Georg (67), German playwright who moved to Switzerland when Nazis assumed power: d. Ascona, Switzerland, June 5.
Kalish, Max (54), American sculptor: d. New York City, March 18.
Kan-in, Field Marshal Prince Kotohito (80), member, Japanese Privy Council; honorary president, Japanese Red Cross: d. Japan, May 21.
Karamanli, Prince Suleyman Bey (54), member of family that ruled Tripolitania and Cyrenaica, 1711 to 1835; d. Tripoli, c. Oct. 10.
Kaufman, Beatrice Badrow (50), writer, editor; wife of playwright George S. Kaufman: d. New York City, Oct. 6.
Keane, Doris (63), retired actress who became famous in New York in 1913, London in 1915 for performance in *Romance:* d. New York City, Nov. 25.
Kemmerer, Edwin Walter (70), monetary expert, who had been called upon by 14 governments for advice in re-

organizing their monetary systems: d. Princeton, N.J., Dec. 16.

Kemp, George (78), the Baron Rochdale who fought in Boer and First World wars: d. Lingholm, Keswick, England, March 24.

Kern, Jerome David (60), American composer who wrote the scores for *Very Good Eddie, Sally, Sunny, Show Boat* and numerous other light operas: d. New York City, Nov. 11.

Kernan, Francis Joseph (86), major general, U.S. Army, retired, Spanish-American, First World War veteran; ex-commander of Philippines: d. Daytona Beach, Fla., Feb. 6.

Kerr, Albert Boardman (70), lawyer, author of several books, including *The Long, Crooked River, Valiant Hearts:* d. Montesanto, Va., June 20.

Key, Pierre van Rensselaer (73), music editor, critic: d. New York City, Nov. 28.

Keyes, Admiral of the Fleet Lord Roger John Brown Low (73), one of Britain's great naval heroes who served as an observer on a U.S. warship during the landings on Leyte, the Philippines, in October 1944: d. Buckingham, England, Dec. 26.

Kniagevitch, Lydia (80), pianist; widow of Alexander Kniagevitch, chamberlain to late Czar Nicholas of Russia: d. New York City, July 2.

Knoblock, Edward (71), American-born British playwright, best known for play *Kismet:* d. London, England, July 19.

Knott, Thomas A. (65), professor of English, University of Michigan; lexicographer, philologist: d. Ann Arbor, Mich., Aug. 16.

Knubel, Rev. Dr. Frederick Hermann (75), president, United Lutheran Church of America, from its formation in 1918 until Jan. 1, 1945: d. New Rochelle, N.Y., Oct. 16.

Koenigsberg, Moses (67), former head of Hearst news services: d. New York City, Sept. 21.

Konoye, Prince Fumimaro (54), three-times premier of Japan and considered wire-puller behind Japanese throne during the Second World War: committed suicide rather than surrender himself as a war criminal, Tokyo, Japan, Dec. 15.

Korngold, Julius (84), retired dean, European music critics: d. Hollywood, Calif., Sept. 25.

Krofta, Kamil (69), former foreign minister of prewar Czechoslovak Republic: d. Prague, Czechoslovakia, Aug. 18.

Kummel, Henry Barnard (78), retired New Jersey state geologist: d. Trenton, N.J., Oct. 23.

Laing, Gordon Jennings (75), classics scholar; on University of Chicago faculty for 33 years: d. Chicago, Ill., Sept. 1.

Lalique, Rene (85), French jewel designer, who for many years strongly influenced French art and the making of jewelry and glassware: d. Paris, France, May 9.

Lang, The Most Rev. Cosmo Gordon (81), former archbishop of Canterbury: d. Richmond, Surrey, England, Dec. 5.

Larson, Col. Emery Ellsworth (46), U.S. Marine Corps officer; former head football coach at U.S. Naval Academy: d. Atlanta, Ga., Nov. 7.

Latzko, William (81), gynecologist, ex-professor, University of Vienna: d. New York City, Feb. 11.

Lea, Luke (66), former U.S. Senator from Tennessee; newspaper publisher whose career included attempt to kidnap exiled German Kaiser in Holland: d. Nashville, Tenn., Nov. 18.

Lee, Vice Admiral Willis A., Jr. (57), naval tactician; in 1942 commanded Pacific task force that sank Japanese battleship, 3 cruisers: d. Portland, Me., Aug. 25.

Lehman, Irving (69), chief judge, New York State Court of Appeals: d. Port Chester, N.Y., Sept. 22.

Lesley, Everett Parker (70), former head, Stanford University's Aeronautics Department: d. Palo Alto, Calif., Jan. 17.

Lewis, William Mather (57), former president, Lafayette College: d. Colebrook, Conn., Nov. 11.

Ley, Robert (55), chief, German Labor Front: committed suicide by strangulation in Nuremberg prison cell to escape war crime trial, Oct. 25.

Liebling, Leonard (71), music critic, librettist, editor, *The Musical Courier:* d. New York City, Oct. 28.

Lindsay, Sir Ronald (68), British diplomat; ambassador to Washington, 1930–39: d. Bournemouth, England, Aug. 21.

Lloyd-George, David (82), Earl Lloyd George of Dwyfor; Britain's prime minister during First World War: d. Llanystumdwy, Caernarvonshire, North Wales, March 26.

Locke, Edward (76), retired playwright, author of *The Climax,* etc.: d. East Islip, L.I., N.Y., April 1.

London, Frank Marsden (68), painter, specializing largely in pictures of still-life; also designer of stained glass: d. New York City, March 10.

Long, Omera Floyd (75), professor of Latin, Northwestern University: d. Williamstown, Mass., Nov. 27.

Lopez, Encarnacion (47), professional name Argentinita; internationally known classical dancer: d. New York City, Sept. 24.

Lucas, Alfred (79), last principal survivor of British archaeological party that entered inner chamber of tomb of King Tut-Ankh-Amen, 1923: d. Cairo, Egypt, Dec. 9.

Lumsden, Lieut. Gen. Herbert (47), Great Britain's special representative with General MacArthur since 1943: killed by enemy air action in Pacific, Jan. 6.

Lyman, Maj. Gen. Charles H. (69), U.S. Marine Corps officer, retired; former commanding general, Department of Pacific: d. San Diego, Calif., July 23.

Lyons, John J. (64), former secretary of state, New York State: d. New York City, Feb. 27.

MacDougall, Alice Foote (77), business executive, restauranteur: d. New York City, Feb. 10.

Mackensen, Field Marshal August von (95), known as father of German Army; hero on eastern front, First World War: d. Celle, Germany, Nov. 8.

MacLaren, Malcolm (76), chairman, department of electrical engineering, Princeton University: d. Princeton, N.J., Sept. 24.

MacLean, James A. (76), former president, Idaho State University: d. London, England, Jan. 18.

Maloney, Francis T. (50), U.S. Senator from Connecticut: d. Meriden, Conn.

Martin, George B. (69), former U.S. Senator from Kentucky: d. Catlettsburg, Ky., Nov. 12.

Martin, Col. Russell C. (97), past commander in chief, Grand Army of the Republic: d. Los Angeles, Calif., Dec. 29.

Mascagni, Pietro (81), composer of *Cavalleria Rusticana;* one of the most popular of contemporary Italian musicians: d. Rome, Italy, Aug. 2.

Maynard, Brig. Gen. John B. (57), U.S. Army officer, retired. d. Washington, D.C., Feb. 2.

McCloy, Lieut. Commander John (69), U.S. naval officer, retired; one of few men to win 2 Congressional Medals of Honor: d. Leonia, N.J., May 25.

McCormack, John (61), Irish tenor: d. Booterstown, Dublin Co., Ireland, Sept. 16.

McCoy, Herbert Newby (74), chemist; for 16 years, professor of chemistry, University of Chicago: d. Los Angeles, Calif., May 7.

McGuire, Maj. Thomas B., Jr. (23), U.S. Army Air Force officer; leading American active ace with 38 Japanese planes to his credit: killed in Philippines, Jan. 7.

McNab, Archibald P. (81), lieutenant governor of Saskatchewan: d. Regina, Saskatchewan, Canada, April 29.

Merriam, John Campbell (76), paleontologist; president emeritus, Carnegie Institution of Washington 1939: d. Oakland, Calif., Oct. 30.

Merriman, Roger Bigelow (69), Guerney professor history and political science, Harvard University: d. St. Andrews-by-the-Sea, New Brunswick, Sept. 7.

Meyer, Gustave M. (69), biological chemist, former member, Rockefeller Institute for Medical Research: d. Saranac Lake, N.Y., May 9.

Mitchell, Sir Peter C. (80), zoologist, author of biological books: d. London, England, July 2.

Monaco, James V. (60), composer of popular songs, including *You Made Me Love You:* d. Hollywood, Calif., Oct. 17.

Moncada, Gen. José Maria (76), former president of Nicaragua: d. Managua, Nicaragua, Feb. 23.

Morgan, John J. B. (56), professor of psychology, Northwestern University: d. Evanston, Ill., Aug. 16.

Morgan, Thomas Hunt (70), a foremost authority on heredity; 1933 Nobel Prize winner: d. Pasadena, Calif., Dec. 4.

Morris, Roland Sletor (71), Philadelphia attorney, one-time ambassador to Japan; prominent Episcopal layman: d. Philadelphia, Pa., Nov. 23.

Moses, John (59), Democratic U.S. Senator from North Dakota: d. Rochester, Minn., March 3.

Mott, James W. (62), Representative in Congress from Oregon: d. Washington, D.C., Nov. 12.

Mudge, Rev. Dr. Lewis Seymour (76), former stated clerk, General Assembly, Presbyterian Church in United States: d. Bryn Mawr, Pa., April 29.

Murdock, Victor (74), editor in chief, *Wichita Eagle;* former congressman; member, Federal Trade Commission: d. Wichita, Kansas, July 8.

Murphy, Hermann Dudley (77), American landscape painter: d. Lexington, Mass., April 16.

Murray, Gen. Sir Archibald (84), British chief of Imperial Defense Staff in First World War, veteran of Boer War: d. Reigate, Surrey, England, Jan. 23.

Murray, Walter C. (73), president emeritus, University of Saskatchewan: d. Saskatoon, Saskatchewan, March 23.

Mussolini, Benito (61), Fascist dictator of Italy; killed by Italian Partisans near Como, Italy, April 28.

Nazimova, Alla (66), for more than 45 years one of most distinguished actresses of stage, screen; best known for performance in Ibsen's *Ghosts:* d. Hollywood, Calif., July 13.

Negri, Ada (74), novelist, member of Italian Academy: d. Milan, Italy, Jan. 13.

Neurath, Otto (63), Vienna-born sociologist, Oxford Uni-

versity professor and developer of statistical symbols known as isotopes: d. Oxford, England, Dec. 22.
Newberry, Truman H. (80), secretary of the navy under President Theodore Roosevelt; former Republican Senator from Michigan, and one of that state's leading industrialists. d. Detroit, Mich., Oct. 3.
Nock, Albert Jay (72), American writer, critic, author of *Henry George*, etc.: d. Wakefield, R.I., Aug. 19.
Norris, Charles Gilman (64), novelist; husband of Kathleen Norris, author; best known for his books *Brass, Bread, Seed:* d. Palo Alto, Calif., July 25.

O'Connor, James Francis (66), U.S. Representative in Congress from Montana: d. Washington, D.C., Jan. 15.
Olmstead, Albert Ten Eyck (65), professor, Oriental history, University of Chicago; author: d. Chicago, Ill., April 11.
Onslow, Richard William Alan (68), 5th earl of Onslow; deputy speaker, House of Lords since 1931: d. London, England, June 9.
Oreamuno, Ricardo Jimenez (85), former president of Costa Rica: d. San Jose, Costa Rica, Jan. 4.
O'Shea, Most Rev. William F. (60), vicar apostolic of Heijo, Korea; former secretary general, Maryknoll Seminary, New York: d. New York City, Feb. 27.
Oumansky, Constantine A. (42), Soviet ambassador to Mexico; former ambassador to the U.S.: killed in plane crash, Mexico City, Jan. 25.
Oxford, Countess of (81), widow of Liberal Prime Minister H. H. Asquith of Great Britain, author, *Off the Record* and other books: d. London, England, July 28.

Partridge, Sir Bernard (83), English artist, principal *Punch* cartoonist for 35 years: d. London, England, Aug. 9.
Patch, Lieut. Gen. Alexander M. (55), Fourth Army Headquarters commander, First World War veteran, and commander, U.S. Seventh Army in Europe during Second World War: d. San Antonio, Texas, Nov. 21.
Patrick, Maj. Gen. Edwin D. (51), commanding general, 6th Infantry Division; former chief of staff, Sixth Army: d. of wounds suffered in Luzon, P.I., c. March.
Patten, George W. (Gilbert) (78), wrote under pen name of Burt L. Standish in producing popular *Frank Merriwell* stories: d. Vista, Calif., Jan. 16.
Patton, Gen. George Smith, Jr. (60), commander of U.S. Third Army in famous drive from Normandy Beach to Austria, 1944–45: d. Heidelberg, Germany, Dec. 21.
Pelliot, Paul (67), French authority on China and the Orient: d. Paris, France, Oct. 29.
Pendergast, Thomas J. (72), former Kansas City political boss: d. Kansas City, Mo., Jan. 26.
Phipps, Sir Eric (70), British ambassador in Paris, 1937–39; ambassador to Germany, 1933–37: d. London, England, Aug. 13.
Piccirilli, Attilio (77), Italian born sculptor: d. New York City, Oct. 8.
Pierson, Col. Robert H. (70), U. S. Army officer, retired; served as chief surgeon, Army of Occupation in Germany at end of First World War: d. Syracuse, N.Y., June 2.
Pratt, Frederic Bayley (80), retired president, Pratt Institute, Brooklyn, N.Y.: d. Long Island, N.Y., May 3.
Prettyman, Rev. Dr. Forrest J. (85), former chaplain, U. S. Senate: d. Rockville, Md., Oct. 12.
Price, Brig. Gen. Harrison J. (77) commander, 154th Infantry Brigade, 77th Division, First World War: d. Richmond, Va., Sept. 16.
Prince, John Dyneley (77), former diplomat, one of world's leading linguists, and professor emeritus, East European languages, Columbia University: d. New York City, Oct. 11.
Pyle, Ernest Taylor (Ernie) (44), famous war correspondent; author *Here is Your War; Brave Men:* killed on island of Ie, in the Ryukyus group, April 17.
Pyle, Mrs. Geraldine (45), widow of Ernie Pyle: d. Albuquerque, N. M., Nov. 23.

Quisling, Vidkun Abraham (58), Norwegian traitor: executed, Oct. 24.

Ramsay, Admiral Sir Bertram Home (61), hero of Dunkerque; director of naval operations in Allied invasion of Normandy: killed in plane crash on trip to Belgium, Jan. 2.
Rand, Edward Kennard (73), Pope professor emeritus of Latin, Harvard College: d. Cambridge, Mass., Oct. 28.
Randall, Rear Admiral Albert B. (70), former commandant, U. S. Maritime Service; first merchant marine officer to be commissioned rear admiral in naval reserve: d. Bethesda, Md., Dec. 1.
Rapee, Erno (55), conductor of Radio City Music Hall orchestra since 1932: d. New York City, June 26.
Ray, Anna Chapin (80), writer of stories for children: d. New Haven, Conn., Dec. 13.
Reeves, William Peters (79), for 35 years head of English Department, Kenyon College, Gambier, Ohio: d. Gambier, Ohio, Jan. 30.
Reinke, Edward E. (57), biology professor, Vanderbilt University; d. Nashville, Tenn., Jan. 25.
Rhode, Most Rev. Paul Peter (73), bishop Green Bay (Wis.) Roman Catholic Diocese since 1915: d. Oshkosh, Wis., March 3.
Richards, Horace Clark (77), emeritus professor, physics, University of Pennsylvania: d. Philadelphia, Pa., May 20.
Richards, Robert Hallowell (100), professor emeritus, mining engineering, Massachusetts Institute of Technology: d. South Natick, Mass., March 27.
Riddell, William Renick (92), justice, Supreme Court of Ontario for 39 years: d. Toronto, Ontario, Canada, Feb. 18.
Rigby, Col. William Cattron (73), retired, acting judge advocate general of army, 1931–34: d. Falls Church, Va., April 16.
Rives, Amelie (82), American playwright, poet, essayist, popular novelist in 1890's: d. Charlottesville, Va., June 15.
Roda Roda, Alexander (63), central European playwright, novelist, satirist: d. New York City, Aug. 20.
Roosevelt, Franklin Delano (63), 31st president of United States: d. Warm Springs, Ga., April 12.
Root, William T. (62), dean, graduate school, University of Pittsburgh since 1935: d. Pittsburgh, Pa., Jan. 24.
Rorke, Kate (81), English actress, retired: d. Hertfordshire, England, July 31.
Rose, Maj. Gen. Maurice (45), commander, 3d Armored Division: killed in action in Germany; death announced by War Department, April 2.
Rothenstein, Sir William (73), British artist; principal, Royal College of Art, 1920–35: d. Stroud, Gloucestershire, England, Feb. 14.
Rothschild, Baroness Nelly de (58), wife of Baron Robert de Rothschild, member of family of international bankers: d. New York City, Jan. 8.
Royal, Rear Admiral Forrest B. (52), commander of amphibious force in Pacific: d. Pacific theater of war, c. June 19.
Rupertus, Maj. Gen. William H. (55), commander, 1st Marine Division in Solomons and New Britain campaigns: d. Washington, D.C., March 25.
Russell, James Earl (81), dean emeritus, Teachers College, Columbia University: d. Nov. 4.
Ryan, Rt. Rev. Msgr. John A. (76), nationally recognized labor expert; pioneer of minimum wage legislation: d. St. Paul, Minn., Sept. 16.

Salten, Felix (75), Austrian author, well known for story of *Bambi*, made into American motion picture: d. Zurich, Switzerland, Oct. 8.
Sanford, Steadman Vincent (74), chancellor, University System of Georgia: d. Atlanta, Ga., Sept. 15.
Scarbrough, 10th Earl of (87); director general, Territorial and Volunteer forces, 1917–21: d. Sandbeck Park, Yorkshire, England, March 4.
Schelling, Felix E. (87), author, professor emeritus of English, University of Pennsylvania; Elizabethan and Shakespearean scholar: d. Mount Vernon, N. Y., Dec. 15.
Schrembs, Archbishop Joseph (79), head, Roman Catholic Diocese of Cleveland for more than 24 years: d. Cleveland, Ohio, Nov. 2.
Scott, John R. K. (72), Philadelphia attorney, former congressmen-at-large: d. Philadelphia, Pa., Dec. 9.
Scribner, Henry Sayre (85), professor emeritus of Greek, University of Pittsburgh: d. Pittsburgh, Pa., Jan. 4.
Scrugham, James Graves (65), U.S. Senator from Nevada: d. San Diego, Calif., June 23.
Seabrook, William B. (59), explorer, author: d. Rhinebeck, N.Y., Sept. 20.
Seabury, George Tilley (65), executive head, American Society of Civil Engineers: d. New York City, May 25.
Seagle, Oscar (68), baritone opera singer and well-known voice teacher: d. Dallas, Texas, Dec. 19.
Seibold, Louis (81), New York newspaperman, winner of Pulitzer Prize for reporting in 1920: d. Washington, D.C., May 10.
Seredi, Justinian, Cardinal, primate of Hungary, archbishop of Esztergom: reported dead in Vatican German-language broadcast, April 13.
Sert, Jose Maria (69), Spanish mural painter, known best in U.S. for work in RCA Building, New York City: d. Barcelona, Spain, Nov. 27.
Seymour, George Dudley (85), authority on Nathan Hale, about whom he wrote several volumes: d. New Haven, Conn., Jan. 21.
Shaposhnikoff, Marshal Boris (62), former chief of General Staff, Russian Army; chief of Soviet Supreme Military Academy: d. announced in Moscow, Russia, March 27.
Shear, T. Leslie (64), archaeologist, Princeton University faculty member for 25 years: d. Lake Sunapee, N.H., July 4.
Sheehan, Most Rev. Michael (75), archbishop coadjutor of Sydney, New South Wales, 1922–37: d. Dublin, Ireland, March 1.
Shipley, Frederick W. (74), former dean, graduate studies, Washington University, St. Louis: d. St. Louis, Mo., Feb. 11.
Sidney, George (68), former well-known stage, screen actor: d. Hollywood, Calif., April 29.

Siloti, Alexander (82), distinguished Russian-born pianist; one of 2 surviving pupils of Franz Liszt: d. New York City, Dec. 8.

Simons, Moises (56), Cuban musician, composer of world-famous popular song *The Peanut Vendor:* d. Madrid, Spain, June 28.

Sladen, Maj. Gen. Fred W. (78), army officer, retired; served as 5th Infantry Brigade commander in France during First World War: d. New London, N.H., July 10.

Smith, Clifford P., Christian Science leader: d. Waban, Mass., Aug. 8.

Smith, Lady Eleanor Furneaux (42), English novelist, authority on Gypsies, daughter of late British chancellor, the First Lord Birkenhead: d. London, England, Oct. 20.

Smith, Col. Lowell H. (53), pioneer aviator who set 16 world records for military aircraft speed and endurance; commanded army's first round-the-world airplane flight for three-fourths of route in 1924: d. Tucson, Ariz., Nov. 4.

Speaks, John C. (86), former Representative in Congress from Ohio: d. Columbus, Ohio, Nov. 6.

Spearman, Charles E. (82), professor emeritus, psychology, University of London; former president, British Psychological Society: d. London, Eng., Sept. 18.

Stanfield, Robert Nelson (68), former U.S. Senator from Idaho: d. Weiser, Idaho, April 13.

Stinchcomb, James (47), head, University of Pittsburgh classics department: d. Pittsburgh, Pa., July 13.

Stuart, Lieut. Gen. Kenneth (50), former chief of staff, Canadian military headquarters in London: d. Ottawa, Canada, Nov. 3.

Sykes, Eugene Octave (68), former justice, Supreme Court of Mississippi: d. Washington, D.C., June 21.

Symons, Arthur (79), British poet, literary critic: d. Witersham, Kent, England, Jan. 22.

Tablada, Jose Juan (74), Mexican poet, author, educator: d. New York City, Aug. 2.

Tardieu, André (68), three times premier of France: d. Mentone, France, Sept. 15.

Tatekawa, Lieut. Gen. Yoshitsugu (65), Japanese diplomat, former ambassador to Moscow: d. London, Sept. 10.

Tcherepnine, Nicholas (72), Russian musician, composer; noted for comic opera *The Fair at Sorochintzy;* ballets *Pavilion d'Armide* and *Narcissus;* and *A Russian Fairy Tale,* produced by Pavlova: d. Paris, France, c. June 28.

Terboven, Josef, German commissar for Norway: committed suicide, Oslo, Norway, c. May 11.

Tewksbury, Rev. Elwood Gardner (80), educator, missionary, religious leader in China for more than 50 years: d. Philadelphia, Pa., Nov. 5.

Thomas, John (71), U.S. Senator from Idaho: d. Washington, D.C., Nov. 10.

Thompson, Capt. Terry Brewster (54), U.S. naval officer, retired; assistant director, Base Development and Maintenance Division, Navy Department: d. Bethesda, Md., March 6.

Thornton, Edward Quin (78), former professor of therapeutics and materia medica, Jefferson Medical College: d. Philadelphia, Pa., Jan. 17.

Tolstoy, Aleksei (62), famous Russian author; generally considered Soviet Russia's greatest contemporary writer; one of chief defenders of Stalin regime: d. Russia, Feb. 23.

Toole, Joseph (58), member of Parliament, ex-lord mayor of Manchester: d. Blackpool, England, June 4.

Townley, Sir Walter Beaupre (82), British diplomat; covered posts in many parts of world since 1886: d. London, England, c. April 6.

Train, Arthur C. (70), American lawyer and author; creator of Ephraim Tutt, fictional lawyer: d. New York City, Dec. 22.

Trelease, William (87), professor emeritus, botany, University of Illinois: d. Urbana, Ill., Jan. 1.

Troubetzkoy, Princess. See Rives, Amelie.

Tucker, Beverley Randolph (71), neuropsychiatrist, noted for pellagra studies; author: d. Richmond, Va., June 19.

Tufts, Leonard (75), founder, developer of North Carolina resort of Pinehurst; noted dairy cattle breeder: d. Pinehurst, N.C., Feb. 19.

Tupper, Sir Reginald Godfrey Otway (85), vice admiral of Atlantic blockade; admiral of northern patrol during First World War: d. London, England, March 6.

Upton, Edwin C. (72), professor emeritus of English language and literature, Bard College: d. New York City, March 26.

Urena, Rafael (55), former president, Dominican Republic: d. Ciudad Trujillo, Dominican Republic, Sept. 16.

Valery, Paul (73), French poet, author, philosopher, critic; best known for *La Jeune Parque* and *Climetiere Marin;* elected to French Academy as successor to Anatole France: d. Paris, France, July 20.

Van Anda, Carr V. (80), former managing editor, the New York *Times:* d. New York City, Jan. 28.

Van Deventer, Harry Brown (63), Latin professor, University of Pennsylvania: d. Rosemont, Pa., Jan. 25.

Van de Water, Mrs. Virginia Terhune, novelist, short story writer: d. Pompton Lakes, N.J., Oct. 17.

Vicaji, Dorothy Elaine, English portrait painter: d. Palm Beach, Fla., Feb. 13.

Vinson, Robert E. (68), former president, Western Reserve University, and the University of Texas: d. Cleveland, Ohio, Sept. 2.

Vogel, Hans (64), one of pre-Nazi Germany's best known labor leaders; last freely elected chairman, German Social Democratic Party: d. London, England, Oct. 6.

Von Reznicek, Emil N. (84), Viennese composer of many operas, including *Donna Diana:* d. Berlin, Germany, Aug. 5.

Von Westarp, Count Kuno Friederick (81), Reichstag floor leader, German Nationalist Party, for many years; retired in 1929: d. Berlin, Germany, Aug. 5.

Vreeland, Herbert Harold (88), industrialist, authority on steam and electric railways: d. Palm Beach, Fla., Jan. 31.

Waite, Merton Benway (80), horticulturist, botanist, plant pathologist of U.S. Department of Agriculture: d. Washington, D.C., June 5.

Wake-Walker, Admiral Sir W. Frederick (57), third sea lord; and controller of British Navy: d. London, England, Sept. 24.

Waldron, Sidney Dunn (72), machinery maker, one of principal designers of Liberty airplane motor in First World War: d. Hamilton, Ohio, Jan. 20.

Walker, Thomas J. (67), associate judge, U.S. Customs Court: d. New York City, Jan. 18.

Waters, James R., radio, theatrical, vaudeville comedian; starred for 15 years as Jake Goldberg in radio program, *The Goldbergs:* d. Woodmere, N.Y., Nov. 20.

Watson, Billy (78), well known singer, Dutch stage comedian: d. Asbury Park, N.J., Jan. 14.

Watson, Maj. Gen. Edwin M. (61), secretary, military aide to President Roosevelt: d. on board ship while returning from mission abroad with president, Feb. 20.

Weaver, Arthur J. (71), former governor of Nebraska: d. Falls City, Nebr., Oct. 18.

Werfel, Franz (54), noted Austrian novelist, poet, dramatist: d. Hollywood, Calif., Aug. 26.

Weyerhaeuser, Frederick E. (72), lumber baron of northwest: d. St. Paul, Minn., Oct. 18.

Whelan, George Joseph (80), last of three brothers who founded United Cigar Stores Company: d. East Orange, N.J., Dec. 29.

Whitnall, Harold Orville (67), head, department of geology and geography, Colgate University; author of books, and articles on scientific subjects: d. Hamilton, N.Y., May 18.

Wieselthier, Vally (50), ceramic artist, sculpturess: d. New York City, August 31.

Wildey, Spence (39), art editor, *The Woman's Home Companion;* designer: d. New Rochelle, N.Y., Oct. 31.

Wildrick, Col. Edward W. (64), U.S. Army officer retired; served as acting assistant chief of staff, 6th Army Corps and assistant chief of staff, 33d Division in First World War: d. Washington, D.C., Feb. 21.

Willoughby, Westel Woodbury (77), retired professor, political science, Johns Hopkins University: d. Washington, D.C., March 26.

Wilson, Margaret Barclay (82), professor emeritus, department of Physiology and Hygiene, Hunter College, New York: d. Washington, D.C., Oct. 8.

Wilson, Thomas James, Jr. (71), dean of admissions, registrar, secretary of faculty, University of North Carolina: d. Chapel Hill, N.C., Oct. 25.

Wing, Maj. Gen. Leonard F. (52), leader of 43d Winged Victory Division, through 4 brilliant campaigns in Pacific during Second World War: d. Rutland, Vt., Dec. 19.

Witos, Wincenty (71), vice president, Polish National Council; premier of Poland, 1920–21: d. Cracow, Poland, Oct. 31.

Wood, Charles (90), noted British jockey of Victorian and Edwardian eras; winner of 3 British derbies: d. Eastbourne, England, June 2.

Woodlock, Thomas Francis (78), contributing editor, *Wall Street Journal;* former member, Interstate Commerce Commission: d. New York City, Aug. 25.

Woods, Mrs. Margaret L. (89), British poet and novelist who was a close friend of Alfred Lord Tennyson: d. Thurley, Surrey, England, Nov. 30.

Woolsey, John Munro (68), judge, U.S. District Court for southern district of New York: d. New York City, May 4.

Wyeth, Newell Convers (62), illustrator, mural painter: d. near Chadds Ford, Pa., Oct. 19.

Wynter, Lieut. Gen. Henry Douglas (58), Australian Army officer: d. Melbourne, Feb. 7.

Young, Hugh H. (74), internationally known surgeon, urologist: d. Baltimore, Md., Aug. 23.

Young, James C. (57), author, newspaperman, publicist; wrote *Roosevelt Revealed, Liberia Rediscovered,* etc.: d. New York City, Oct. 27.

Zuloaga, Ignazio (75), Spanish painter: d. Madrid, Spain, Oct. 31.

NEGRI SEMBILAN. See BRITISH MALAYA.

NEGRO ADVANCEMENT IN 1945. Many natural changes took place in the social relationships of people during the course of the Second World War; and despite the fact that these changes were inevitable, there was a reluctance on the part of many to accept them. Patriotism and the emotional appeal of an all-out effort to win the war muzzled any open attack on the greater recognition of American Negroes in our moral values—the exclusion of which has deprived them of a complete citizenship. But since the war ended, Negroes have experienced an increasing amount of opposition by whites.

The organized resistance to the Negroes has set up racial bars to better residential property; created greater hardships for the skilled worker to secure a job; blocked permanent federal legislation—and in the majority of states, to insure fair employment practices; encouraged white school children to go out on strikes as a demand for separate schools in the North; established a quota system in their admission to private and professional schools. And in the South there have been reports where the Constitution, guaranteeing life and liberty, has been flagrantly disregarded in cases involving Negroes. Local municipal ordinances have been enforced by operators of public transport systems with shameful abuse to Negroes. Often black soldiers in uniform have been subjected to humiliating treatment. And all of these citations have been high-lighted by Southern politicians—members of Congress—who trade in race hatred.

Therefore, it is difficult to look through a maze of conflict and discern the advancement of the Negro during the year, 1945. But there are some acts that point to a better trend in race relations—a prerequisite for understanding and accepting the Negro as a complete citizen. In many Southern communities, for the first time in history, blacks and whites have met in conferences to discuss racial issues. For instance, in the state of North Carolina, the governor, an editor of a daily newspaper and two distinguished Negro educators appeared in a national radio forum to discuss the inequalities in treatment of Negroes by public authority. Also a joint advisory committee on interracial affairs was organized by the Jackson (Mississippi) Chamber of Commerce and the Negro Chamber of Commerce. Among the nineteen vice presidents elected for this year to serve the Maryland-District of Columbia Industrial Union Council, five were Negroes.

The Association of American Colleges elected Dr. David D. Jones, president of Bennett College to its board of directors. A number of colleges and universities of the North have appointed Negroes to their academic faculties and professional staffs. Included in this list are Columbia University, New York University, the four city colleges of New York City, Smith College and Vassar. And on the board of trustees for the new Roosevelt College (Chicago) a Negro was elected vice chairman.

Another positive trend in the educational field was seen in the equalization of salaries of Negro teachers with that of whites in the state of South Carolina and in Newport News, Va., more than $21,000 was paid to the Negro teachers as back salary following a court decision to equalize their pay with whites.

Of all professional fields, the theater has been far more democratic in acceptance of the Negro; and during the year producers have presented them in non-Negro typed roles. *Anna Lucasta,* for example, a successful Broadway play, with an entirely Negro cast, and, without a Negro theme, is continuing indefinitely. Billy Rose's *Carmen Jones,* with an all-Negro cast, made a spectacular hit, and Lillian Smith's *Strange Fruit* began its run as a Broadway play.

Writing under this caption, "First Nights and Passing Judgments," in the October issue of *Esquire,* George Jean Nathan, one of America's foremost dramatic critics, said: "The Negroes have proved themselves and have fully deserved their estate. And the first peculiarly to agree are the very whites who are in danger of being ultimately ousted by them. It was these whites, for example, who on a committee composed of actors, producers, and critics of their own race at the end of last season awarded the Derwent prize for the best performance of a supporting player not to a white actor, but to a Negro, Frederick O'Neal. It was ten out of sixteen of these white reviewers who again subsequently singled out from white actors for highest respect in that same category, that same Negro actor and who further endorsed Alice Childress, a Negro actress, above such white actresses as Catherine Proctor, Dora Meranda and Catherine Willard; and Hilda Simms, the Negro actress above such whites as Carol Stone, Mary Welch and others."

Other Negro performers on Broadway included Paul Robeson in *Othello,* Canada Lee in *The Tempest,* Richard Huey and Dooley Wilson in *Bloomer Girl.* Broadway had already been introduced to Todd Duncan, Georgetta Harvey and Butterfly McQueen. And now new names are to be added like Muriel Smith, Carotta Franzell, Elton Warren, Inez Mathews, Luther Saxon and Muriel Rahn.

In other professions, too, individual Negroes have gained some distinction. Dr. U. G. Dailey, a Chicago surgeon, was elected to an active fellowship in the International College of Surgeons. Dr. Dailey, Dr. Roscoe C. Giles, and Dr. Carl G. Roberts were the first Negro surgeons elected to the American College of Surgeons in over 20 years. A political scientist, Dr. Ralph J. Bunche, was appointed by President Truman as a member of the Anglo-American Caribbean Commission. Irving C. Mollison, a Chicago lawyer, was appointed to the United States Custom Court, New York District. Adam Clayton Powell, Jr. was the first Negro to sit in Congress from the State of New York. Clifford F. Smith, an ex-seabee, the first Negro permitted to take the examination for the master electrician's license in Houston, Texas, successfully passed. For the first time in history, a Negro, Dr. Channing Tobias, was elected as the executive director of a nonracial foundation—the Phelps-Stokes Fund.

In the general field of law and order Georgia abolished its poll tax law; New York State enacted the Ives-Quinn bill which outlaws discrimination in employment because of "race, creed, color, or national origin;" the New Jersey Assembly established a Division against Discrimination in the State Department of Education. The State Supreme Court of California, in the case of the Boilermakers Union, ruled that a labor union, in the exercise of a quasi-public function, cannot exclude Negroes from its membership while attempting to enforce a closed shop agreement. And the Supreme Court of Florida freed a Negro, sentenced to 20 years in prison for killing a white sheriff, who had attacked him after

searching his home. The court commented that although the accused was a Negro and the victim a white man "these facts should make no difference in rules and principles applicable to the administration of justice."

For the federal government the Navy Department gave the greatest recognition to the Negro. Through its Bureau of Naval Personnel the department issued a guide to its commanding officers which abolished its policy of discrimination against Negro seamen. According to the Navy Department there were proportionally more Negroes in the Revolutionary navy than in the army of that time. This held true until the War of 1812. It was not until the Second World War, however, that they were again admitted in large numbers for general service. The order to the command of Negro personnel clearly illustrated that: "The Navy accepts no theories of racial differences in inborn ability, but expects that every man wearing its uniform be trained and used in accordance with his maximum individual capacity determined on this basis of individual performance." And in the Second World War—in spite of many disadvantages—for the first time Negro sailors were commissioned as officers; for the first time, too, in its 176-year history, Negroes were admitted to the U. S. Marine Corps; women were taken into the Waves and Spars; sailors were sent to specialists' schools to learn skilled trades; a Negro was given command of a mixed crew on a patrol vessel; nurses were taken into the navy, and men were taken in all capacities without quotas.

Although the army has been much less aggressive than the navy in eliminating discrimination, this must be mentioned for the record: Negro soldiers for the first time were assigned to white combat units at the fighting front, admitted to the Army Air Corps, women taken into the Women's Army Corps, a Negro commissioned a general, officer candidates trained and lived in the same barracks with whites, reporters accredited as war correspondents, and nurses integrated with whites and attended white patients.

In spite of these hopeful trends, one must consider them as only fragmentary gains in an unsettled world—groping for peace. The state of war can no longer be used as a catalyzing agent for democracy, and the position of the Negro now rests in a crucial state.

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NEJD. See ARABIA—*Saudi Arabia.*

NEPAL. An independent kingdom on the northeastern frontier of India. The area is 54,000 square miles, and the population numbers 5,600,000. Gurkhas are the dominant race. Since 1867 authority has been vested in the prime minister (always a member of the royal family) not in the sovereign. Maharajadhiraja Tribhubana Bir Bikram has been the sovereign since 1911; and Sir Joodha Shumshere Jung Bahadur Rana, the prime minister since 1932. Nepal's internal and external independence has been recognized by the British government. A British minister resides at the royal court, and a Nepalese minister is in London. Revenue, over £1,000,000 a year, is derived from taxes on land, from forest produce, and from the customs. The capital is Katmandu (pop. 108,805), and other large towns are Patan (104,928) and Bhatgaon (93,176). Exports (about £4,000,000 yearly) include cattle, hides and skins, jute, grains, oil seeds, and lumber; and chief imports (some £2,000,000 a year) are salt, spices, sugar, metal ware, cotton goods, and yarn. Nepal has two rail connections with the British Indian rail system in Bihar Province; from Amlekhganj to Raxaul, 25 miles; and from Bijulpura to Jayauagar, 33 miles. Numbers of Gurkhas are recruited from Nepal for the Indian Army; and a separate Nepalese military force served in the Second World War.

NETHERLANDS, The, or **HOLLAND.** A country of northwestern Europe which was under German occupation from May 15, 1940 to May 5, 1945; area 13,440 square miles, population (Jan. 1, 1943) estimated at 9,090,000. The kingdom of the Netherlands was established in 1814 by the Treaty of London, under the sovereignty of a prince of Orange-Nassau, a descendant of the house which had taken a leading part in the affairs of the country since the 16th century. According to the constitution, it is an hereditary constitutional monarchy, with executive power vested in the sovereign and legislative authority in the sovereign and a Parliament of two houses, known as the States-General. For administrative purposes, the country is divided into 11 provinces. The principal towns are Amsterdam (est. pop., Dec. 31, 1939, 800,594), Rotterdam (619,686), The Hague (504,264), Utrecht (165,028), Haarlem (140,469), Groningen (121,632), and Eindhoven (113,128).

On May 10, 1940, German land and air forces invaded the Netherlands without declaring war. Within three days the country had been cut in two as the German armies moved toward the Channel ports. Queen Wilhelmina, who succeeded at the age of 10 on the death of her father in 1890, and ascended the throne on Sept. 6, 1898, moved to London and there headed the government. On May 14, 1940 the Dutch forces gave up fighting except in the province of Zeeland, and on the following day the Netherlands was completely occupied by the Germans. Dr. Artur Seyss-Inquart was appointed Nazi civil administrator by German officials on May 30, 1940.

Heroic resistance and sabotage led by an active underground movement developed. Late in January 1944 it was reported that 20,000 Dutch citizens had been executed for patriotic activities by occupationist Nazi forces between May 1940 and December 1943, but without decreasing sabotage. Following the Allied landing in France on June 6, 1944 the British entered the Netherlands on September 11 above Neerpelt, Belgium, after crossing the Schelde-Meuse Canal, and on October 31 reached the Meuse River. On November 6 it was announced that the Germans had begun their retreat north of the Meuse.

Considerable sections of the Netherlands were flooded by the retreating Nazi troops, who opened dykes, and it was feared that the ensuing devastation would affect the economy of the country for years to come. By the middle of November, 17 per cent of the arable land was under water, an acute shortage of food had developed, and famine threatened the country. A general demand arose in the liberated areas for punishment of all traitors, for the re-establishment of civil liberties, and for an early restoration of representative government.

Military Forces.—Prior to May 1940, military service was compulsory and partly voluntary, with liability to service with the army between the ages of 19 and 40. The navy consisted of 1 coast-defense vessel, 5 cruisers, 5 armored gunboats, 3 escort vessels, 8 destroyers, 6 seagoing torpedo boats, 24 submarines, 9 minelayers, 16

minesweepers, and other smaller craft, all together totaling 120 naval units. The Netherlands held a leading position in the naval strength of the occupied countries opposing the Axis with 80 combatant ships and approximately 7,000 personnel on March 31, 1943.

The Netherlands armies had an estimated personnel of about 500,000, including all available actives and trained reserves in the latter part of 1939; the air force numbered about 600.

During the German occupation the Netherlands army was demobilized, and the country was "policed" by German troops, under conditions of growing opposition from the effective resistance movement, with almost universal support by the general population.

Finances.—On May 7, 1940, the consolidated debt totaled 3,140,000,000 guilders, and the floating debt 776,000,000 guilders. On June 4, 1945, these figures had risen to about 6,000,000,000 and 6,671,000,000 respectively. The item "Foreign Bills" increased in the same period from 1,000,000 to 4,500,000,000 guilders. The circulation increased from 1,000,000 to 5,500,000,000. Circulation of the bank notes of smaller denominations increased from 1,000,000 guilders to 313,000,000 guilders. Current accounts at banks and in post offices amounted to an estimated total of 3,800,000,000 guilders, of which 778,000,000 guilders were liabilities of the Netherlands Bank. (In July 1945 notes of 100 guilders or less, while not being marketed commercially in New York, were being redeemed by the Netherlands Bank in Holland at the rate of $37.38 in United States dollars per 100 guilders.)

Production, Foreign Trade, Communications, and Education.—Owing to the disruption caused by the German occupation, complete current statistics on these subjects were not available at the time of going to press. The few published facts indicate some of the chief postwar problems confronting the Netherlands. After September 1944, when the Dutch began a nationwide strike against the Germans, the latter cut off food imports into Holland and stopped the shipment of food from the agricultural districts of that country to the large cities. As a result, during the months preceding the liberation the daily food allotment of the Dutch dropped from the normal 2,500 to 3,000 calories to 500 calories or less. Thousands starved to death, and some 80,000 persons required the used of special proteins, rushed by air from the United States and Britain, to keep them alive.

Food, clothing, medical supplies, and fuel for the coming winter became the supreme immediate necessities. Toward the end of June it was estimated that the total damage due to the war amounted to over 15,000,000,000 guilders, equivalent to half the national wealth in 1938. Even these figures do not take into account losses of property removed by the Germans, 50 per cent damage to railways, and between 10 and 20 per cent destruction of buildings, public utilities, and agriculture (by flooding with salt water, etc.). In Rotterdam, during the invasion and the bombing which followed the surrender, the Germans destroyed 26,000 houses, 1,200 factories, and 2,300 shops.

Principal Events, 1945.—At the start of the year, more than one half of Holland, with a little more than three quarters of the population, was still in German hands. The Allied armies' dash to the Rhine, in the fall of 1944, had brought liberation only to the southern provinces of Limbourg, Brabant, and Zeeland, leaving the Nazis in control of the whole central and northern portion of the country, including all the biggest urban centers. Military operations in the early part of 1945 did not materially alter the stalemate on the Rhine and Maas (Meuse) rivers which had resulted from the Battle of Arnhem. Thus, for a majority of Hollanders, freedom did not ring until the total collapse of Germany. Late in April, Canadian forces, surging back into Holland from occupied Germany liberated the northeastern provinces, but the great cities of Amsterdam, Rotterdam, The Hague, and Utrecht had to wait until May 4, when all German forces in Holland surrendered unconditionally; four days later, the Canadians were in complete control of the country. On May 11 the Netherlands Civil Affairs Administration announced an extraordinary state of siege under which Gen. H. D. G. Crerar, commander of the Canadian First Army, was given "the highest power in the land." This military phase of Holland's rehabilitation lasted until September 7, when the state of siege was lifted. By that time most administrative functions had been returned to the Netherlands government, but the work of the Civil Affairs Administration continued on a limited scale.

Queen Wilhelmina arrived in southern Holland on May 3 but did not return to the royal palace at The Hague until July 6. Premier Pieter S. Gerbrandy's government-in-exile, which had remained in London even after the partial liberation of Holland in the fall of 1944, resigned on May 16 but continued to function at the queen's request and on May 23 the Cabinet convened at The Hague for its first meeting on liberated Dutch soil. A new government, headed by the 50-year-old resistance leader Professor Willem Schermerhorn, was formed on June 23 with the active assistance of the Socialist leader Willem Drees. All but four of the Cabinet's 15 members were men of the former underground and they represented all major political parties with the exception of the Communists and the Protestant anti-Revolutionary Party. Foreign Minister Eelco Nicolaas van Kleffens was continued in his post which he had held since August 1939.

Despite public clamor for early elections, the new government decided that elections on a national scale, for the lower house of Parliament, should be postponed until the latter half of 1946 on the grounds that voting registers were in a chaotic condition and that the press and political parties needed time for reorganization. Municipal and provincial elections were scheduled for early 1946.

Within a few days after liberation, more than 3,000 persons had been arrested by the Netherlands Forces of the Interior, in collaboration with Allied authorities; the total later reached 60,000. Artur Seyss-Inquart, the Nazi Reichskommissar for occupied Holland, was seized by Canadian military police while attempting to escape on May 6; he was turned over to the international tribunal at Nürnberg for trial as a war criminal. Anton Mussert, the diminutive leader of the Dutch Nazi Party, also was taken into custody, along with his chief henchmen, Meinoud M. Rost van Tonningen and Max Blokzijl. Rost van Tonningen, who had been president of the Netherlands Bank under the Nazi regime, later committed suicide; Blokzijl, chief radio propagandist of the Dutch Nazis, was sentenced to death in September; Mussert went on trial November 27 before a special court at The Hague, which condemned him to death on December 12. According to a statement made by Premier Scher-

merhorn on September 10, the government plans eventually to deport 80,000 Dutch traitors and collaborationists to one of Holland's overseas possessions for forced settlement; all the more serious offenders would have to stand trial, though.

Good progress was made in the summer and fall of 1945 toward the rehabilitation of Holland's ruined economic system and the improvement of food and health conditions. As in other liberated countries, the chief prerequisite for national recovery was fuel. By early September, the consumption of coal had reached 60 per cent of normal, and transport facilities were improving rapidly. The reclamation of land flooded by the Germans also proceeded satisfactorily. But the housing situation remained acute throughout the year.

A vast improvement in the food situation was noted within a few weeks after liberation. At the turn of the year, famine conditions had prevailed in all the large cities; in February, the daily food ration per head dropped below 400 calories in the thickly populated "hunger provinces" of western Holland. Relief did not come until a few days before the German surrender, when British and American mercy planes and trucks were permitted to cross the fighting lines to carry supplies to the starving civilian population. Substantial shipments of food were rushed into Holland immediately after the war in Europe and by mid-July the situation was described as satisfactory by nutrition authorities, with the average consumption per day and person at 2,000 calories. By the end of August conditions had improved so much that community kitchens in Amsterdam and The Hague could be closed.

Despite the hardships suffered by the homeland in five years of occupation, the Netherlands government vigorously prosecuted the war in the Pacific. On June 1, Gen. Henri G. Winkelman, commander of Dutch forces at the time of the Nazi invasion, who had been released from a German concentration camp on May 19, issued a call to Holland's youth to volunteer for service in the Far East. Jonkheer A. W. L. Tjarda van Starkenborgh Stachouwer, governor general of the Netherlands East Indies, was liberated from a Japanese prison camp on August 19. On the same day the "cease fire" order was issued to Japanese forces on Java. The Dutch government, which had been taken somewhat by surprise by the sudden Japanese collapse, took quick steps for the rehabilitation of the East Indies and their return to Netherlands control. It was unable, however, to quell a nationalist revolt, headed by Achmed Soekarno, which led to the establishment of an "Indonesian Republic," unrecognized by any Allied power. Bloody clashes occurred on Java, and on a minor scale on Sumatra, between the Indonesians and British and Dutch forces. Van Starkenborgh Stachouwer resigned October 15 and was replaced as governor by Hubertus J. van Mook. On November 13, "President" Soekarno named Sutan Sjahrir "Premier" of the "Indonesian Republic." Both Britain and the United States strongly urged the Dutch and the native leaders to compromise and at the year's end, a peaceful solution seemed near.

NETHERLANDS BORNEO. See BORNEO; NETHERLANDS INDIES.

NETHERLANDS GUIANA. See SURINAM.

NETHERLANDS INDIES (MALAY ARCHIPELAGO, INDONESIAN ARCHIPELAGO). Overseas territories of the Netherlands (Holland) in the East Indies, consisting of five large islands—Java, Sumatra, part of Borneo, Celebes, and the western half of New Guinea, also some 15 minor but important islands, and literally thousands of small islands and islets. The area and population (1930 census) are as follows:

Island	Area sq. mi.	Population 1930
Java and Madura	51,032.4	41,718,364
Sumatra	164,147.6	7,677,826
Riouw-Lingga Archipelago	12,234.9	298,225
Bangka	4,610.7	205,363
Billiton	1,866.1	73,429
Borneo, Dutch	208,285.5	2,168,661
Celebes	72,986.4	4,231,906
Molucca[1]	191,681.8	893,400
Timor Archipelago	24,449.5	1,657,376
Bali and Lombok	3,973.0	1,802,683
Total	735,267.9	60,727,233

[1] Including Dutch New Guinea.

Among these territories, Java, with an area roughly comparable to that of the state of New York, and with its amazingly dense population (about 817.5 per square mile), has been economically and politically the most important island of the Netherlands Indies. Forming with Madura (Madoera) the part of the territory under direct government (as compared with the remainder, known as the outer provinces), it includes, toward the northeast end of the island, Batavia (pop. 435,184), chief city of the Indies and seat of the government. Java and Sumatra have extensive, remarkably fertile flatlands, which account largely for their immense productivity and enormous population. Sumatra shares importance with Borneo among the great petroleum regions. Borneo, (q.v.) the world's third largest island, is only partly under Dutch sovereignty, the northern part, comprising British North Borneo, and Sarawak. Its oil deposits, forest products, and minerals were crucial to Japan's war effort. Over half the island of Timor (mainly the eastern end) is Portuguese. Dutch New Guinea, constituting the western half of the world's second largest island, was the only section of the Netherlands Indies, part of which remained in Allied possession throughout the Japanese occupation.

Important cities of the Netherlands Indies other than Batavia are: Soerabaja (Surabaya, pop., 1939, 341,675), Semarang (217,796), and Bandoeng (Bandung, 166,815), all on Java; Palembang (108,145), and Medan (76,584) on Sumatra; Makassar (Macassar, 84,855), and Manado (27,482), on Celebes; and Bandjermasin (65,698) and Balikpapan, (strategic oil center, est. pop. 30,000, in 1941), on Borneo.

The People.—The native inhabitants of the Netherlands Indies (numbering in 1930 some 59,000,000), speak about 60 languages, Javanese, Sundanese, and Madurese being used by the greatest numbers. Malay is also understood in most of the islands. Among the other principal native peoples are: the Achinese of Sumatra, the Menadonese of Celebes, the Sasaks of Lombok, the Dyaks of Borneo, and the Papuans of New Guinea. There were also in 1930, 240,417 Europeans, 1,233,214 Chinese, and 115,535 other orientals. During the Japanese occupation the invaders tried to popularize the use of the Japanese language as well as to secure acceptance of Japanese leadership in the establishment of the southeast Asia co-prosperity sphere—projects said to have been met with considerable resistance and hostility on the part of the Indonesians.

Agriculture and Production.—The Netherlands East Indies constitute an exceedingly wealthy

colonial possession. "In 1939," states *Foreign Commerce* (Sept. 16, 1944) "the Indies supplied an estimated 86 per cent of the total world pepper exports, 65 per cent of kapok, 37 per cent of rubber, 33 per cent of sisal hemp, 27 per cent of coconut products, 24 per cent of palm-oil products, 19 per cent of tea, and 5 per cent of coffee. Moreover, in the same year 92 per cent of the world's production of cinchona bark for extraction of quinine was furnished by the Netherlands Indies, 19 per cent of tin, 7 per cent of bauxite for aluminum, 6 per cent of sugar cane, and 3 per cent of petroleum." More than 130,000,000 pounds of tea were gathered in 1939 from the hillsides of Java. Sumatra oilfields in 1940 produced nearly 40,000,000 barrels of crude petroleum. Three small islands, Banka, Billiton, and Sinkep, supplied about 44,000 tons of tin annually before the Second World War. In 1940 production of sugar amounted to 1,587,364 metric tons; of coffee, 77,647 tons; of rubber, 546,021 tons; of tobacco, 27,414 tons.

The Japanese, during the years of their occupation, are understood to have converted large areas in Java from tea and coffee production to cotton, most of which went to the army and the home islands. They also caused severe damage to Java's extensive forests, in a vain effort to make good their shipping losses through the use of wooden vessels. Owing to lack of refining facilities, the occupying forces were unable to make use of much of the archipelago's annual yield of 58,000,000 barrels of petroleum. In February 1945, the Netherlands government, anticipating the end of the Japanese occupation of the Indies, which was to come some months later, were planning to obtain in the United States goods valued at more than $200,000,000 for relief and rehabilitation in the Netherlands Indies, including 200,000 tons of essential cereals, 80,000 tons of meat and fish, and some 450,000,000 yards of cotton goods. These huge emergency imports to the Indies—which also included rubber-processing equipment valued at $15,000,000—were expected by the Netherlands authorities to yield quick returns in valuable exports—rubber, coffee (from Java), tea, sugar, tobacco (from Sumatra), kapok, palm oil, pepper, nutmegs, cloves, and cinnamon. It was hoped that the islands would thus be enabled to repay the credits extended to them, and to restore their own depleted and disordered economy. In July (1945) it was reported that as an outcome of the two-way lend-lease agreement between the Netherlands and the United States, petroleum was being obtained by the United States military authorities from the island of Tarakan, then recently liberated, and also from the Brunei area of Borneo.

Foreign Trade.—Exports in 1940 were valued at 883,239,000 guilders and imports at 437,678,000 guilders as compared with exports valued at 787,079,000 guilders and imports valued at 529,868,000 guilders in 1939. In 1940 the United States supplied 290,907,000 guilders worth of the imports and took 102,783,000 guilders worth of the exports of the islands. (The guilder averaged $0.53 in U.S. money in both 1940 and 1939. In July, 1945, notes of 100 guilders or less were being redeemed by the Netherlands Bank in Holland at the rate of $0.3738 per guilder in United States currency.)

Communications.—On Dec. 31, 1940, the Netherlands Indies had about 43,700 miles of highways—the mileage of the larger islands being: Java and Madura, 16,850; Sumatra, 15,800; Borneo, 2,250; Celebes, 5,090; Bali and Lombok, 1,250; Timor, 2,100; and the Moluccas, 250. There were 4,611 miles of railways and tramways (state and privately owned) of which 3,378 miles were in Java and 1,233 miles in Sumatra. There were 676 post offices; 1,380 rural postal agencies; 481 telegraph offices; 629 rural telegraph agencies; and 85 radio stations. There were also 722 telegraph offices and 44 radio stations of other government services and private companies. Government telephone lines extended in 1940 over 16,921 miles, and government cables over 1,479 miles. There were 340 government telephone exchanges and 51,606 telephones. There was regular airplane service supplied by three separate companies.

On March 16, 1945, the first of 20, 450-ton coastal vessels ordered by the government of the Netherlands Indies was begun at Portland, Oregon. These ships, which were to be finished before the end of the year, were intended first to carry war equipment and food to the liberated areas in the archipelago, and later to aid in the rehabilitation of the islands.

Government.—For nearly two centuries before the period of Japanese occupation (1942–45) the Netherlands Indies had been ruled by the Dutch East India Company, which was created in 1602. The company was dissolved in 1798, and from 1816 on the Netherlands possessions were ruled by the mother country. Administrative and executive authority rests in the hands of a governor general, who is assisted by an advisory council of from four to six members. Both the governor general and the members of the council are appointed and dismissed by the queen. In 1918 a Volksraad (Peoples Council) was set up to discuss the budget, and to advise the government on matters of general importance. The majority of the members of the People's Council are Indonesians, but it includes also Europeans, Chinese, and Arabs. Indonesians are eligible for public offices, and steps have been taken to develop self-government. Java and Madura have been divided into three autonomous provinces under governors, and subdivided into residences, governed by residents. Local government is exercised almost entirely by native civil servants. Governors likewise were appointed for the native states of Soerakarta and Djokjakarta, and the outer islands have been divided into three areas under governors, and subdivided into 17 residencies, governed by residents.

Finance.—During 1942, 750,918,773 guilders were the estimated amount of government revenues, as compared with 746,149,905 guilders in 1941. Expenditure in 1942 was estimated at 813,802,815 guilders as compared with 1,060,168,910 guilders in 1941. To meet these deficits a number of taxes and levies were increased and new ones introduced.

On Feb. 21, 1944, a new banking institution, De Bank voor Nederlandsch Indie, N.V. (The Bank for the Netherlands Indies, Ltd.) was incorporated in London. It was described as a temporary institution to begin operations when the governor of Surinam so willed, and to terminate on Dec. 31, 1948, unless conditions necessitated an earlier closing or an extension. The object of the new company was to re-establish banking and financial operations generally in the Netherlands Indies between liberation and the restoration of normal conditions.

Following the liberation of Balikpapan early in July 1945, new Netherlands Indies bank

notes, printed in the United States, were put in circulation, superseding the inflationary Japanese invasion currency, and the prewar Indies currency. The latter, while it had retained its former value, now had to be exchanged for the new notes, which now became the sole legal tender.

Religion and Education.—Under the Dutch regime religious liberty was granted to all faiths. The majority of the natives are Mohammedans, but there are one and a half million Hindus on Bali and Lombok, several million Animists in the outer Territories (Sumatra, Borneo, Celebes, etc.), 1,600,000 Protestants, mostly organized in various native churches and 500,000 Catholics.

Education was offered by means of public primary schools for Europeans and persons assimilated with them, for the Chinese (Dutch-Chinese schools), for the natives (Dutch-Native schools), and link schools. Instruction in these schools was through the medium of the Dutch language. In addition, there were public schools in which the instruction was given through the medium of a native tongue. For secondary education there were public secondary schools. Higher education was given at the Technical College at Bandoeng and in the colleges of law, medicine, literature (since 1940), and civil service at Batavia. There were a number of private schools, primary and secondary, and training schools in engineering, architecture, electrical engineering, mining, and agriculture.

Principal Events.—Apart from circumstances of economic or political interest already mentioned, the outstanding events of late 1944 and the first half of 1945 had to do with the Allied military campaign to cripple Japan's war effort by cutting off the flow of essential war supplies from the Netherlands Indies to the Japanese home islands, and to drive the enemy from the Indonesian Archipelago. To these ends, ever-intensifying air and naval raids were carried on against Japanese-controlled oilfields, airfields, and other concentration points, and shipping. On May 1, after heavy bombing preparation, Tarakan Island, off the northeast coast of Borneo, was invaded by Australian forces in conjunction with Netherlands engineering troops. Resistance on Tarakan ended on June 11. By June 27 Tarakan oilfields resumed production, now under Allied auspices. In the meantime a second invasion was opened on June 10 on Brunei Bay, on the northwest coast of Borneo. On July 1 Allied forces landed at Balikpapan, east coast oil center, capturing the docks and oil facilities on July 3, securing the immediate area by July 5, and thence extended control north and south along the coast. Bombing, and some naval bombardment of strategic objectives continued until August 14, when general offensive action was halted throughout the Pacific area following the announcement of the Japanese surrender.

The Japanese in Netherlands Borneo formally surrendered (to the Australians) on September 19. On October 4 it was reported that Indonesian nationalists, having proclaimed an Indonesian republic, had taken over the chief cities of Java. The Dutch declared their willingness to negotiate with Indonesian leaders other than Dr. Achmed Soekarno, most prominent figure in the movement, whom they accused of having collaborated with the Japanese, but proceeded, with British assistance, in their attempt to reoccupy the island. The Nationalist leaders, reaffirming the desire of the Indonesians for full independence, rejected Dutch proposals to give the islands dominion status in a projected commonwealth under Netherlands auspices. By December 9, after severe fighting, British naval, air, and ground forces (the latter mainly Indian divisions) had established military control or some of the main Javanese centers. On December 20 the United States government asked for an early end of the fighting, and for a settlement along the liberal lines called for in the United Nations Charter. By January 4, 1946, the Indonesian civil police had been disbanded, 2,000 Dutch marines landed at Batavia, the capital, and the civilian functions of military law transferred by the British to the Netherlands military courts.

NETHERLANDS WEST INDIES.. See CURAÇAO; SURINAM.

NEVADA. Mountain state, United States; admitted to the Union Oct. 31, 1864. Population (1940): rural, 66,956; urban, 43,291; total, 110,247. Land area, 109,802 square miles, divided into 17 counties. Principal cities, with 1940 populations: Reno, 21,317; Las Vegas, 8,422; Carson City, the capital, 2,478.

Chief State Officers, 1945.—Acting governor, Vail Pittman[1]; secretary of state, Malcolm McEachin; treasurer, Dan W. Franks; comptroller, Henry C. Schmidt; attorney general, Alan Bible.

Judiciary.—Chief justice of the state Supreme Court, E. J. L. Taber; associate justices, Edward A. Ducker, William E. Orr.

Legislature.—The state legislature (Senate, 17 members; Assembly, 40) convenes biennially in odd years on the third Monday in January.

Education.—Public elementary schools (1944–45), 211; teachers, 652; pupils, 21,170; average yearly salary of elementary school teachers, $1,638. Public junior and senior high schools, 5; teachers, 86. Teachers train at the University of Nevada, Reno, which receives financial aid from the state. Total state appropriation for education (1945), $869,445; appropriation by cities and counties (1943–44), $2,196,942. Superintendent of public instruction, Mildred Bray.

Finances.—Following is a statement of Nevada's finances for the fiscal year 1944–45, supplied by Dan W. Franks, state treasurer:

Balance in treasury, beginning of fiscal year 1944–45	$ 3,995,669.36
Receipts, 1944–45	7,267,522.91
Total	$11,263,192.27
Disbursements, 1944–45	6,844,145.45
Balance, beginning of fiscal year 1945–46	$ 4,419,046.82
Less outstanding treasurer's checks per controller's record	584,791.30
Treasurer's balance, June 30, 1945	$ 3,834,255.52

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Oats (1,000 bu.)	181	252	287
Wheat (1,000 bu.)	441	479	509
Barley (1,000 bu.)	507	851	912
Hay:			
Alfalfa (1,000 tons)	301	337	323
Tame (1,000 tons)	365	426	403
Wild (1,000 tons)	211	230	230
Potatoes (1,000 bu.)	409	544	684

NEVIS. See LEEWARD ISLANDS.

NEW BRITAIN. See NEW GUINEA, TERRITORY OF.

[1] E. P. Carville resigned the governorship July 24, 1945 to become member of the United States Senate.

NEW BRUNSWICK. One of the three Maritime provinces of Canada; area, 27,985 square miles; population (1941) 457,401. The province was separated from Nova Scotia in 1784 under the first governor, Thomas Carleton. It is represented in the Canadian Parliament by 10 senators and 10 members of the House of Commons. Provincial government is administered by a lieutenant governor and a Legislative Assembly of 48 members elected for five years. Fredericton, the capital, has a population of 10,062. Other cities are Saint John (51,741), and Moncton (22,763).

Finances.—Revenues for 1945 were estimated at $13,072,567 and expenditures at $13,034,838. The bonded debt of the province at the end of 1944 was $103,630,073.24.

Education.—Primary education is nondenominational, compulsory and free. For the school term ended June 30, 1944, 2,706 classrooms were in use in 1,604 school buildings in the province. Enrollment in graded schools was 49,213 and in ungraded schools 31,677. Degree-conferring institutions are the University of New Brunswick, under provincial control at Fredericton; Mount Allison University at Sackville; St. Joseph's University at Memramcook; St. Thomas College at Chatham; and the Sacred Heart College at Bathurst.

Production.—Agricultural production in 1944 included: potatoes 10,369,000 hundredweight. Livestock included 232,400 cattle, 111,300 sheep, and 1,792,000 poultry, all substantial increases over the preceding year. For 1945, to meet emergency demands for increased food production, there was an above average acreage of grain and potatoes.

Of New Brunswick's 27,985 square miles (total area) approximately 80 per cent, or about 14,000,000 acres, is productive forest land. The province retains the title to and administers 7,500,000 acres of forest.

Capital invested in the pulp and paper, sawmill and wood processing industries is estimated at $50,000,000 and wages approximate $16,000,000 annually. Total value of forest products in 1944 was estimated at $72,000,000. The total production of sawn lumber in 1944 accounted for some 315,000,000 board feet and the value of products reached $37,000,000. In 1944 the six pulp and paper mills in New Brunswick used 827,000 cords of pulpwood operating at about 90 per cent of capacity. The value of the products of the six plants is estimated at $35,000,000.

Mineral production in 1944 was valued at $3,269,000. There were 6,500,000 cubic feet of natural gas and 784,000 gallons of crude oil produced near Moncton. It is believed by some geologists who have done exploratory work in this field that it may be developed into one of the greatest oil producers on the continent when modern drilling methods are applied. More than 52,000 tons of gypsum were produced and processed in Albert County. Some 71,000 tons of limestone were quarried, of which 62,000 were used for soil treatment. Peat moss operations are continuing in Gloucester County, where some of the continent's richest deposits of peat are found. Bituminous coal is mined in the Minto-Chipman area. Gold, iron, copper, lead, zinc, antimony, and manganese exist in the province but so far have not been found in commercially profitable quantities.

There were 867 manufacturing establishments in 1942 with capital of $105,056,835, employing 22,182 persons and producing goods valued at $123,839,475.

Transportation.—New Brunswick is well served by the Canadian National Railways system, the main route from Quebec Province following the north shore to Moncton, with an inland route from Edmundston to Moncton. The Canadian Pacific operates daily service between Montreal and Saint John and Fredericton. The Second World War saw the inauguration in New Brunswick of a great air traffic, and the establishment of numerous fine airports including the airport at Moncton, one of the largest in the world. The Trans-Canada Airways system was established on a regular schedule between Montreal and Moncton on Jan. 1, 1940, and is now extended to include Halifax, Sydney, and Newfoundland. Northeast Airlines link Moncton to Boston with direct daily connections for New York and Washington; and Maritime Central Airways makes several round trips daily between Moncton and points in Prince Edward Island. Because of its geographical situation, New Brunswick's civil air traffic far exceeds that of the other Maritime provinces. The New Brunswick highway system embraces 12,000 miles of roads of which more than 1,000 miles are paved. The government's postwar plans include further paving.

Hunting and Angling.—The extensive forests and waterways of New Brunswick give cover for an abundance of game and fish. Each year shows an increase in the number of nonresident hunting and angling licenses sold, and in spite of numerous wartime restrictions on travel and ammunition, the year 1944 was second only to 1941 in the sale of both nonresident hunting and angling licenses.

Fisheries.—New Brunswick with 600 miles of coastline bordering those great seas of fish, Fundy Bay and the Gulf of St. Lawrence, has a rich annual harvest of sea fish and shellfish. The best-watered country of its size in the world, drained by a network of great rivers and dotted with lakes and streams, this province also has a valuable inland fishery. The value of production of the fisheries of New Brunswick in 1943, the last year for which figures are available, amounted to $11,202,489 compared with $7,132,420 in the previous year. The sardine fishery was valued at $2,990,490 an increase of 40 per cent in value over that of the preceding year. In New Brunswick, the sardine fishery is of first importance, the lobster fishery second, and the herring fishery, third. Increase in marketed values were shown last year for all the principal kinds of fish produced in the province. New Brunswick produces a wide variety of fish and shellfish, the most popular of which are: oysters, lobsters, clams, quahaugs, sardines, smelts, salmon, shad, cod, haddock, herring, mackerel, and pollock.

D. L. MACLAREN,
Lieutenant Governor, Province of New Brunswick.

NEW CALEDONIA. A French island in the western South Pacific, 1,069 miles northeast of Sydney, Australia. It has a total length of more than 248 miles and an average width of 31 miles. The area is 8,548 square miles, a little larger than Massachusetts. According to the July 1, 1936, census its population numbered 53,245, of whom 17,055 were free, 329 were convicts, and 28,800 were Melanesians and Polynesians. Nouméa, the capital, had a population of 11,108. Other centers include Bourail, La Foa, Moindu, St. Louis, and St. Vincent.

Dependencies of New Caledonia include (1) the Isle of Pines (58 square miles), 30 miles to the southeast; (2) the Wallis Archipelago (40 square miles), northeast of the Fiji Islands; (3) Futuna and Alofi (pop. 2,000), south of the Wallis Islands; (4) the Loyalty Islands (800 square miles), 60 miles east of New Caledonia and consisting of three large islands and numerous small ones; (5) the Huon Islands, a barren group 170 miles northwest of New Caledonia; (6) the Bélep Archipelago, 7 miles northeast of New Caledonia; (7) Chesterfield Islands, 342 miles west of the northern headland of New Caledonia; and (8) Walpole, about 93 miles southeast of Maré (Loyalty Islands).

Administratively connected with New Caledonia are the New Hebrides lying to the northeast and held under the condominium of France and Great Britain by the terms of conventions between the two powers signed in 1887, 1888, and 1906. A protocol ratified by France and Britain in 1922 guarantees the interests of the natives. There are about 40 islands in the New Hebrides group with an area of about 3,706,500 acres. In 1936 the French population numbered 750, the English 178, and native Kanakas estimated at from 43,000 to 60,000.

New Caledonia was discovered by Capt. James Cook in 1774 and visited by d'Entrecasteaux in 1793. French missionaries settled there in 1843 and ten years later it was annexed to France. The average temperature ranges between 65° and 72°. New Caledonia is one of the richest Pacific islands in minerals. Nickel deposits are particularly plentiful, and in 1944 the production amounted to 231,650 tons. There are also deposits of chrome, cobalt, antimony, mercury, silver, lead, and copper. The 1944 statistics show a production of 55,229 tons of chromium, 16,692 tons of gypsum, and 7,936 tons of iron ore. In July 1945, 14,000 tons of chrome were ready for export to France. The agricultural products include coffee, copra, cotton, manioc, corn, tobacco, bananas, and pineapples. The trade is chiefly with neighboring Australia. Exports in 1944 amounted to 25,700 tons valued at 226,700,000 francs, compared with 1938 exports of 94,000 tons valued at 146,500,000 francs. Imports in 1944 were 163,800 tons valued at 402,000,000 francs, compared with the 1938 figures of 184,900 tons valued at 158,600,000 francs. During the 1938–44 period the value of the franc, of course, suffered a very serious diminution. The following table, comparing the foreign trade statistics for the first 9 months of 1944 with those of the relative months in 1945, shows a small but remarkable increase, considering that they cover periods when France was still exerting her main effort to defeat Germany.

NEW CALEDONIA FOREIGN TRADE

1944, FIRST 9 MONTHS

		Value
Imports	125,500 tons	291,800,000 francs
Exports	15,700 tons	144,300,000 francs
Total	141,200 tons	436,100,000 francs

1945, FIRST 9 MONTHS

		Value
Imports	130,700 tons	325,600,000 francs
Exports	42,100 tons	155,500,000 francs
Total	172,800 tons	481,100,000 francs

In mid-1945, the governor of New Caledonia granted the status of free residents to Javanese and Tonkinese workers. He also instituted a 9-hour day with a minimum wage of 5 francs per hour or 45 francs per diem. A supplementary wage is paid to workers with families; specialists also receive a higher wage. A program of public works was instituted with an initial appropriation of 200,000,000 francs.

NEW GUINEA. A Melanesian island, one of the largest in the world, lying north of Australia; area, 308,486 square miles; population about 1,300,000. Politically, the island comprises Netherland New Guinea, or Nieuw Guinee (see NETHERLANDS INDIES), and two areas administered by Australia: North Eastern New Guinea, mainland portion of the Territory of New Guinea (see NEW GUINEA, TERRITORY OF); and the Territory of Papua (see PAPUA, TERRITORY OF). During 1943–44 Australian military engineers constructed the first road across the Owen Stanley Mountains to connect Papua with North Eastern New Guinea; 100 miles in length, it ran from a point approximately 130 miles northwest of Port Moresby to the valley of the Bulolo River, behind Salamaua. The Japanese were driven from most of their remaining positions along the northern coast of the island during 1944, American and Australian troops establishing control over areas in the vicinity of Aitape, in North Eastern New Guinea, and at Hollandia and on the mainland opposite Toem and Wakde islands, in Netherland New Guinea; Hollandia became the headquarters of General Douglas MacArthur until he landed in the Philippines. Through the year the Australian areas continued under military control. The Australian House of Representatives enacted legislation on July 19, 1945, restoring Papua and the Territory of New Guinea to civil control, the two administrations which existed before the war being replaced by a single one; this latter arrangement was to continue until six months after the conclusion of hostilities. Appropriations from Australian revenue and funds from the Commonwealth War Damage Insurance scheme were to be provided for repair of the extensive damage done to large parts of New Guinea during enemy occupation. Elimination was promised of the native indenture system, whereby professional recruiters had been permitted to recruit native labor for employers at a rate per head; improved working conditions included standardized wages, together with rations, housing and medical care; and native education was to be extended.

NEW GUINEA, Territory of. A mandate from the League of Nations administered by Australia, 93,000 square miles in area. The enumerated population (1941) of 691,165 comprised 684,836 natives in patrolled areas and 6,329 nonindigenous inhabitants (of whom Asiatics numbered 2,288 and whites, principally British, totaled 4,101); natives in regions not administered were estimated to number 200,000. The mandate comprises North Eastern New Guinea, 69,700 square miles; Bismarck Archipelago (New Britain, New Ireland, Lavongai, and Admiralty Islands), 19,200 square miles; and the northernmost Solomon Islands (Bougainville and Buka), 4,100 square miles. Because of eruptions of Matupi volcano in 1941, the capital of the mandate was removed from Rabaul, in New Britain, to Lae, in North Eastern New Guinea. The Japanese made Rabaul the chief base of their military operations in the Southwest Pacific. During the war the United States constructed a large naval base on Manus Island, of the Admiralty group, and later extended the base to include neighboring Los Negros, building a bridge across Loniu Passage, which separates the two islands; the

Lorengau River, on Manus, was harnessed for hydroelectric power to supply the numerous permanent buildings, among which was a Coca-Cola plant. On Sept. 5, 1945, the Navy Department recommended that the United States should retain possession of the Manus Island base. An administrator (Brig. Sir Walter Ramsay McNicoll appointed Sept. 13, 1934) is assisted by nominated executive and legislative councils. Revenue in 1940–41 amounted to £423,750, and expenditure was £431,792. The public debt was £15,193. Coconut plantations occupied most of the 277,523 acres under cultivation in 1940; for production in 1944 see PAPUA. Other crops include coffee, cacao, and kapok; yams, taro, sago, and bananas are the chief native foodstuffs. Rich gold, silver, and platinum deposits have been mined to an extent limited by the difficulty of transporting machinery in almost roadless country; other know minerals include copper, iron, lignite coal, osmiridium, and sulphur. Exports in 1940–41 were valued at £3,247,585, and imports amounted to £962,-129.

In November 1944 all garrisons of United States forces in the New Guinea and Solomons area were replaced by Australians and New Zealanders, who continued the operations against the Japanese. The Australian 5th Division landed in New Britain on November 4, and subsequently approximately 8,000 Australians hemmed some 50,000 to 60,000 Japanese in the restricted area of the Gazelle Peninsula. Rabaul, in the northern part of the 50-mile-square Gazelle area, was defended, according to the Japanese, by means of 200 miles of underground tunnels and fortifications and many positions cut into the hills. The Australian 3rd and 11th divisions operated on Bougainville and New Ireland against some 23,000 Japanese troops in those northern islands of the Solomons group; major fighting took place in the Buin area of Bougainville, where the Kahili airstrip was repeatedly bombed. In North Eastern New Guinea, a long and arduous campaign was fought by the Australian 6th Division, which drove the enemy far back into the jungles of Netherland New Guinea, to the northwest.

Gen. Hitoshi Inamura, commander of all Japanese forces in the mandated area, and Vice Admiral Jin-Ichi Kusaka, commanding the enemy's southeastern fleet, signed surrender documents aboard the British carrier *Glorious* outside Rabaul Harbor on Sept. 6, 1945, handing over their swords to Lieut. Gen. Vernon A. H. Sturdee, commanding the Australian First Army. Japanese forces in the northern Solomons were surrendered at Bougainville on September 8 to Lieut. Gen. Stanley G. Savige, commander of the Australian 2d Corps, by Lieut. Gen. Mastane Kanda, of the Japanese Seventh Army, and Vice Admiral Noboru Samejima. Enemy naval forces on the New Guinea coasts and on the islands of Kairuru and Muschu were surrendered at Wewak on September 11 by Rear Admiral Sato (muttering prayers to his ancestors for forgiveness); and two days later, at Wewak, the Japanese Eighteenth Army, which had fought so fiercely in North Eastern New Guinea, was surrendered by Lieut. Gen. Hatazo Adachi, its commander. Through systematic barbarity in the course of the war, the Japanese in the New Guinea area had done to death thousands of hapless Australian and American captives. See also AUSTRALIA, COMMONWEALTH OF—*Australia at War.*

NEW HAMPSHIRE. New England state, United States; one of the original thirteen states. Population (1940): rural, 208,299; urban, 283,225; total, 491,524. Land area, 9,024 square miles, divided into 10 counties. Population (1940) of chief cities: Manchester, 77,685; Nashua, 32,927; Concord, the capital, 27,171; Berlin, 19,084; Portsmouth, 14,821; Dover, 14,990; Keene, 13,832.

Chief State Officers, 1945.—Governor, Charles M. Dale; secretary of state, Enoch D. Fuller; treasurer, F. Gordon Kimball; comptroller, Arthur E. Bean; acting attorney general, Harold K. Davison.

Judiciary.—Chief justice of the state supreme court, Thomas L. Marble; associate justices, Oliver W. Branch, Elwin L. Page, Henri A. Burque, Francis W. Johnston.

Legislature.—New Hampshire's chief legislative body, the General Court (Senate, 24 members; House of Representatives, 399) meets biennially in odd years on the first Wednesday in January.

Education.—Public elementary schools (1943–44 school year, latest reported), 1,613; teachers, 1,831; pupils, 43,286; average yearly salary of elementary and junior high school teachers, $1,753 (men), $1,245 (women). Public junior high schools, 42; teachers, 234; students, 5,138. Public senior high schools, 89; teachers, 924; students, 17,622; average yearly salary of senior high school teachers, $2,208 (men), $1,586 (women). Teacher-training schools; Plymouth Teachers College (121 students) and Keene Teachers College (205). The University of New Hampshire receives financial aid from the state. Total state appropriation for education (1943–44), $570,364; appropriation by cities and districts, $6,863,124. Education is compulsory for children in New Hampshire between the ages of 8 and 14; between 8 and 16, if studies prescribed for elementary school have not been completed.

Finances.—Following is a statement of New Hampshire's finances for the fiscal year 1944–45, supplied by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$ 4,966,368.35
Receipts, 1944–45	31,969,284.25
Total	$36,935,652.60
Disbursements, 1944–45	30,875,930.28
Balance, beginning of fiscal year 1945–46	$ 6,059,722.32

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	631	640	615
Oats (1,000 bu.)	276	259	259
Hay:			
Clover and timothy (1,000 tons)	215	191	221
Tame (1,000 tons)	386	354	416
Potatoes (1,000 bu.)	1,270	1,064	1,054
Apples (1,000 bu.)	733	778	171

NEW HEBRIDES. See NEW CALEDONIA.

NEW IRELAND. See NEW GUINEA, TERRITORY OF.

NEW JERSEY. Middle Atlantic state, United States; one of the original thirteen states. Population (1940): rural, 765,392; urban, 3,394,773; total, 4,160,165. Land area, 7,522 square miles, divided into 21 counties. Chief cities, with 1940 populations: Newark, 429,760; Jersey City, 301,-173; Paterson, 139,656; Trenton, the capital, 124,-697; Camden, 117,536; Elizabeth, 109,912;

Bayonne, 79,198; East Orange, 68,945; Atlantic City, 64,094; Passaic, 61,394.

Chief State Officers, 1945.—Governor, Walter Edge; secretary of state, Joseph A. Brophy; treasurer, Robert C. Hendrickson; comptroller, Homer C. Zink; attorney general, Walter D. Van Riper.

Judiciary.—Chancellor of the state court of appeals and errors, Luther A. Campbell. This court is composed of the chancellor, a chief justice, 8 associate justices, and 6 especially appointed judges.

Legislature.—The state legislature (Senate, 21 members; Assembly, 60) convenes annually on the second Tuesday in January.

Education.—Public elementary schools (latest report, 1943–44 school year), 1,721; teachers, 15,864; pupils, 423,133; average yearly salary of elementary school teachers, $2,104. Public junior high schools (1943–44), 82; teachers, 1,860; students, 38,592. Public senior high schools (1943–44), 162; teachers, 7,640; students, 169,637; average yearly salary of junior and senior high school teachers, $2,578. Education is compulsory in New Jersey for all children between the ages of 7 and 16, inclusive. There are six teacher training schools. Rutgers University and Newark Technical School and College of Engineering receive financial aid from the state. Total state appropriation for education (1943–44), $31,620,655[1]; appropriation by cities and counties (1944), $113,619,047[2].

Finances.—Following is a statement of New Jersey's finances for the fiscal year 1944–45:

Balance in treasury, beginning of fiscal year 1944–45	$ 55,175,099.70
Receipts, 1944–45	401,671,525.25
Total	$456,846,624.95
Disbursements, 1944–45	394,811,935.27
Balance, beginning of fiscal year 1945–46	$ 62,034,689.68

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	7,278	6,755	8,010
Oats (1,000 bu.)	1,346	1,209	912
Wheat (1,000 bu.)	1,218	1,380	1,386
Barley (1,000 bu.)	124	196	180
Rye (1,000 bu.)	309	245	225
Hay:			
Alfalfa (1,000 tons)	116	116	158
Clover and timothy (1,000 tons)	173	127	162
Tame (1,000 tons)	354	320	394
Sweet potatoes (1,000 bu.)	2,116	2,400	2,240
Potatoes (1,000 bu.)	9,633	8,804	12,960
Apples (1,000 bu.)	3,098	2,090	1,221
Peaches (1,000 bu.)	954	1,193	864
Grapes (tons)	2,540	2,600	1,100

NEW MEXICO. Mountain state, United States; admitted to the Union Jan. 6, 1912. Population (1940): rural, 355,417; urban, 176,401; total, 531,818. Land area, 121,511 square miles, divided into 31 counties. Principal cities, with 1940 populations; Albuquerque, 35,449; Santa Fe, the capital, 20,325; Roswell, 13,482; Hobbs, 10,619; Clovis, 10,065.

Chief State Officers, 1945.—Governor, John J. Dempsey; lieutenant governor, James B. Jones; secretary of state, Cecilia Tafoya Cleveland; treasurer, John J. Bingham; auditor, J. D. Hannah; comptroller, C. R. Sebastian; attorney general, Clyde C. McCulloch; commissioner of public lands, John E. Miles.

Judiciary.—Chief justice of the state supreme court, Thomas J. Mabry; associate justices, Howard L. Bickley, Charles R. Brice, Daniel K. Sadler, Eugene D. Lujan.

Legislature.—The state legislature (Senate, 24 members; House of Representatives, 49) convenes biennially in odd years on the second Tuesday of January next after each general election.

Education.—At last report the state had 892 public elementary schools, with 4,436 teachers, and 114,029 pupils; there were 164 high schools having a student enrollment of 23,332 students. The average annual salary for public elementary school teachers was $1,040; for high school teachers, $1,369.

Finances.—The following statement of New Mexico's finances for the fiscal year 1944–45 was furnished by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$ 9,754,599.11
Receipts, 1944–45	35,355,509.67
Total	$45,110,108.78
Disbursements, 1944–45	35,858,043.98
Balance, beginning of fiscal year 1945–46	$ 9,252,064.80

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following tables:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	2,628	3,510	2,100
Oats (1,000 bu.)	667	1,050	594
Wheat (1,000 bu.)	2,396	3,186	2,194
Barley (1,000 bu.)	362	896	550
Sorghums for grain (1,000 bu.)	2,234	5,560	865
Cotton (1,000 bales)	109	116	121
Hay:			
Alfalfa (1,000 tons)	294	382	369
Tame (1,000 tons)	354	458	424
Potatoes (1,000 bu.)	340	425	338
Apples (1,000 bu.)	731	760	625
Grapes (tons)	1,070	1,000	1,000

NEW SOUTH WALES. See AUSTRALIA.

NEW YORK. Middle Atlantic state, United States; one of the original thirteen states. Population (1940): rural, 2,313,249; urban, 11,165,893; total, 13,479,142. Land area 47,929 square miles, divided into 62 counties. Principal cities, with 1940 populations: New York, 7,454,995; Buffalo, 575,901; Rochester, 324,975; Syracuse, 205,967; Yonkers, 142,598; Albany, the capital, 130,577; Utica, 100,518; Schenectady, 87,549; Binghamton, 78,309.

Chief State Officers, 1945.—Governor, Thomas E. Dewey; lieutenant governor, Joe R. Hanley; secretary of state, Thomas J. Curran; comptroller, Frank C. Moore; attorney general, Nathaniel L. Goldstein.

Judiciary.—Chief justice of the state court of appeals, Irving Lehman; associate justices, John T. Loughran, Thomas D. Thacher, Albert Conway, Charles S. Desmond, Edmund H. Lewis, Marvin R. Dye.

Legislature.—The state legislature (Senate, 56 members; Assembly, 150) convenes annually on the first Wednesday after the first Monday in January.

Education.—Public elementary school teachers (latest report, 1943–44 school year), 44,018; pupils, 1,296,901; public junior high schools (1943–44), 137; teachers, 4,238; students, 143,345; public senior high schools (1943–44), 769;

[1] Including funds for state education department, state teachers colleges, etc.

[2] Exclusive of capital in the amount of $538,759.

teachers, 24,078; students, 439,744. There are 11 state teachers colleges. Alfred, Cornell, and Syracuse universities receive financial aid from the state. Total state appropriaiton for education (1943–44), $128,912,763; appropriation by cities and counties (1943–44), $228,575,528. State commissioner of education and president of the University of the State of New York, Dr. George D. Stoddard. Education in New York is compulsory for children between the ages of 7 and 16, inclusive.

Finances.—Following is a statement of New York's finances for the fiscal year 1944–45, supplied by the state treasurer's office:

GENERAL FUND

Balance in treasury, beginning of fiscal year 1944–45	$163,060,680.89[1]
Receipts, 1944–45	517,047,051.29
Total	$517,047,051.29
Disbursements, 1944–45	360,405,726.39
Balance, beginning of fiscal year 1945–46	$156,641,324.90[2]

[1] Transferred to postwar reconstruction fund pursuant to chap. 1, laws 1944.

[2] Transferred to postwar reconstruction fund pursuant to chap. 4, laws 1945.

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	24,076	25,655	24,684
Oats (1,000 bu.)	23,761	25,017	21,518
Buckwheat (1,000 bu.)	2,396	2,700	2,244
Wheat (1,000 bu.)	6,614	8,932	9,651
Barley (1,000 bu.)	3,319	2,325	2,175
Rye (1,000 bu.)	357	270	323
Hay:			
Alfalfa (1,000 tons)	700	847	852
Clover and timothy (1,000 tons)	3,822	4,150	4,433
Tame (1,000 tons)	5,177	5,687	6,013
Tobacco (1,000 lbs.)	1,088	1,170	1,000
Beans, dry edible (1,000 bags)	1,232	731	755
Potatoes (1,000 bu.)	28,595	26,445	30,130
Cherries (tons)	20,535	25,000	9,900
Apples (1,000 bu.)	15,887	17,010	2,700
Peaches (1,000 bu.)	1,258	1,824	1,762
Pears (1,000 bu.)	1,053	1,157	320
Grapes (tons)	58,890	59,300	33,200

NEW ZEALAND. A self-governing Dominion within the British Commonwealth of Nations, in the South Pacific, 1,200 miles east of Australia. New Zealand proper, 103,416 square miles, comprises two main islands, North Island, 44,281 square miles, and South Island, 58,093 square miles, together with Stewart Island, 670 square miles, and Chatham Island, 372 square miles, the two latter being generally included with South Island for statistical purposes. Within the geographical boundaries of New Zealand as proclaimed in 1847, are also seven uninhabited islands or groups with a total area of 307 square miles, of which the largest is the Auckland Islands, 234 square miles. Islands annexed to New Zealand, in total area 212 square miles, comprise the Kermadec Islands, 13 square miles, the Cook Islands, 84 square miles, and other Pacific islands outside the Cook group, 115 square miles. Thus the Dominion of New Zealand has a total area of 103,935 square miles. The Dominion also administers the Ross Dependency, 175,000 square miles, an Antarctic ice-covered area, and the Tokelau (or Union) Islands, 3.5 square miles, besides holding a League of Nations mandate for Western Samoa, the two main islands of which have a combined area of 1,133 square miles (see SAMOAN ISLANDS). New Zealand also shares with Great Britain and Australia the mandate for the island of Nauru (q.v.), 8.43 square miles.

Discovered by Abel Janszoon Tasman in 1642, the islands were first visited by Capt. James Cook in 1769, and subsequently by whalers, traders, and scientists. British sovereignty was proclaimed Jan. 30, 1840; the country was a dependency of New South Wales, Australia, until May 3, 1841, when it was created a separate colony. Self-government was granted in 1852, and in 1907 the colony of New Zealand became a dominion. The Maori, a Polynesian race, constitute 5 per cent of the total population: the white inhabitants are 98 per cent of British stock. As of March 31, 1944, the population, inclusive of the Maori but exclusive of the Cook and other Pacific islands, was estimated to number 1,643,909.

Wellington (pop. 1945 census, 172,887) is the capital, and Auckland (263,575) the largest city; other cities include Christchurch (149,741), Dunedin (83,055), Invercargill (27,419) and Wanganui (26,453).

Education and Religion.—Education is free, from the kindergarten to postprimary grades, and most university students obtain free education by means of scolarships or bursaries. Primary education is compulsory between the ages of 7 and 15. In 1943 there were 2,090 public primary schools, with 204,060 pupils, and 300 private primary schools with 28,467 pupils. Government and private postprimary schools, comprising secondary and others, numbered 228, having 37,976 pupils. At the end of 1942 there were 13,181 Maori children attending public primary schools with the white children; and at 156 additional native village schools were 10,278 Maori and 996 white children. There are four training colleges for teachers. The University of New Zealand consists of Canterbury University College at Christchurch, Auckland University College at Auckland, Otago University at Dunedin, and Victoria University College at Wellington. In 1943 there were 5,692 students at these four constituent colleges. There are 2 schools of agriculture attached to the university. The government expended £NZ5,221,389 on education in 1943–44.

There is no state religion. The chief denominations are the Church of England, with 625,618 communicants in 7 diocese, with a separate bishopric for the Maori; Presbyterian with 368,970; Roman Catholic with 206,587; and Methodist with 126,755.

Government.—Executive authority is vested in a governor general appointed by the crown for a five-year term on the recommendation of the New Zealand government. His powers are exercised through an Executive Council, in fact a Cabinet of members elected to the House of Representatives, to which it is responsible. Legislative power belongs to the General Assembly, a Parliament comprising a Legislative Council of members (37 in 1944) appointed for seven years, and a House of Representatives of 80 members (4 of them Maori) elected by popular vote for the duration of Parliament—a maximum period of three years. In 1945, Lieut. Gen. Sir Bernard C. Freyberg was named governor general in succession to Marshal of the Royal Air Force Sir Cyril Louis Norton Newall when the latter's term should end on Feb. 21, 1946. At the age of two, General Freyberg was taken by his parents from his birthplace in Surrey, England, to New Zealand; he was wounded nine times in the First World War, and several times

during the recent conflict, in which he commanded the New Zealand Army Corps. Peter Fraser has been Labour prime minister of New Zealand since 1940. At the general election held Sept. 25, 1943, the Labour Party, which had held office since 1935, was again returned to power; it obtained 45 of the 80 seats in the House of Representatives, 34 going to the National Party and 1 to an Independent. The War Cabinet, which had had overall direction of the country's war effort since the spring of 1940, was dissolved Aug. 21, 1945; it had consisted of three members of the Labour government and two members of the National Party.

Public Welfare.—The state operates an extensive program of social security, providing benefits (pensions) for the aged, the family (for each child under 16, or under 18 if kept at school) widows, orphans, and invalids, as well as out-of-work pay for the unemployed. Medical and hospital benefits, also provided to all, comprise payments to hospitals and doctors and, in maternity cases, payments to obstetric nurses for home care when necessary; the cost of prescribed drugs, massage and X-ray examinations is also met by the state. For the year ended March 31, 1943, the state expended on these benefits of all classes £NZ15,432,644. The cost was met by annual registration fees payable by all adults, and by a charge of 5 per cent on salaries, wages and the income of companies; the £NZ12,213,640 thus derived was supplemented by a grant of £NZ3,600,000 from general state revenues. The National Provident Fund, which is subsidized by the state to the extent of one fourth of amounts paid in, ensures contributors an annuity at the age of 60, pensions to the widow and children should the contributor die, and pensions to the children should the contributor be incapacitated for work; in 1942 the fund amounted to £NZ6,862,358, 28,508 contributors paying £NZ343,753 during the year. At the end of 1942 there were 96,275 State Life Assurance policies in force, the sum assured and bonuses having a value of £NZ34,200,214; the ratio of expenses to total income was 7.62 per cent. The State Fire Office had a total net income in 1942 of £NZ280,719, and the reserves and funds at the end of the year totaled £NZ1,241,271; the ratio of claims to premiums was 15.4 per cent. At March 31, 1943, the State Advances Corporation, which loans money for farms, city dwellings, and the development or establishment of industries, had 60,849 loans under administration for a total sum of £NZ54,067,802; the lending rate for loans on mortgage was 4½ per cent.

Social security benefits were increased in the 1945–46 budget. Age benefits were raised from £1 12s. 6d. a week to £2 a week, with comparable increases in widows', invalids' miners', sickness, unemployment, and war veterans' allowances. To ensure a minimum family income of £5 a week, on the basis of a family of two children, during periods of sickness, unemployment, or invalidity, the allowance would be increased to £2 each for the father and mother, and 10s. for each child; widowed mothers were to receive £2 a week, plus 10s. for each child, and childless widows would be paid £1 10s., instead of the former weekly rate of £1 5s.

Finance.—The revenues of the Consolidated Fund (the civil budget) at March 31, 1944, stood at £NZ48,828,000, and expenditure amounted to £NZ46,596,000. Budgetary estimates for 1945–46 put Consolidated Fund receipts at £NZ57,294,000 and expenditure at £NZ56,079,000, leaving an estimated surplus of £NZ1,215,000. Although the public debt greatly increased during the war years, over two thirds of the total was held in the Dominion; as of March 31, 1945, the external debt was £NZ199,964,278 and internal debt was £NZ403,274,133, making a total public debt of £NZ603,238,411. In the 1945–46 budget war expenditure was put at £NZ105,400,000; with the end of hostilities the estimate was revised up to the probable date of demobilization, the increased figure of £NZ139,249,000 including expenditure on balances of pay to returned servicemen, provision for three months' leave on full pay and allowances, deferred pay, and war gratuities. During 1944–45, New Zealand supplied materials and services to the United States under reverse lend-lease (reciprocal aid) in excess of the aid received by her. Disregarding the substantially higher price basis operating overseas as compared with New Zealand prices, the Dominion provided reverse lend-lease goods and services valued at £NZ26,700,000 and received like assistance from overseas totaling £NZ24,600,000 (£NZ24,300,000 in lend-lease from the United States and £NZ300,000 in reciprocal aid from Canada). Reverse lend-lease for 1945–46 had been estimated at £NZ24,000,000, and this figure was cut by only £NZ2,000,000 in the revised estimate to demobilization.

War Participation.—Enlistment for home defense was made compulsory in 1940, and for overseas wherever required in 1942. Troops were not withdrawn from the Middle East and Europe after Japan entered the conflict in 1941, New Zealanders serving in all campaigns in those theaters until the close, and in May 1945 being called upon to occupy Trieste and Gorizia, in the disputed Venezia Giulia area of Italy. In June, New Zealand commenced to organize a force for service in the Southwest Pacific, where already its air force was serving with the Australians against Japanese positions in the Solomons. At the end of June 1945, the Dominion's armed forces totaled 100,228, of whom 42,128 were in New Zealand (including 4,700 women) and 58,100 overseas; of the overseas forces, 46,765 were allocated to the European theater. New Zealand dead in battle were in proportion to 5.5 per 1,000 of the population, a rate nearly equal to that of Britain itself. Total casualties at the end of June 1945 were 30,085, this figure comprising 9,907 killed, 773 missing, 19,282 wounded, and 123 prisoners of war. The total cost of the war to New Zealand down to the end of March 1945 had been more than £NZ500,000,000. After the war ended, New Zealand organized a force of 4,000 men to form part of a British Commonwealth division in the occupation of Japan.

Local Government.—While the central government is concerned directly with education, main highways, public health, and police throughout the country, as of April 2, 1942, there were 681 authorities responsible for local governments. These comprised county and borough councils and town boards, and numerous boards dealing with such matters as rivers, land drainage, water supply, fire protection, harbors, electric power supply, hospitals, and control of the rabbit pest. Receipts came from rates (local taxes), revenue from public utilities, licenses and rents, and payments from the central government—principally subsidies and a proportion of the tax on gasoline. In 1941–42 the total receipts of local authorities amounted to £NZ24,016,536, and

the expenditure was £NZ24,072,092; the net indebtedness of local bodies totaled £NZ56,779,434 on March 31, 1942.

Agriculture.—Of the total area of 66,390,196 acres within the Dominion, 42,958,555 acres are occupied by private holdings, 67 per cent of the occupied land being held in areas of 1,000 acres and upwards; freehold and leasehold lands are in approximately equal proportions. In 1942–43, 19,931,050 acres were under cultivation, of which 1,911,833 acres were devoted to field crops. The acreages under the principal field crops in 1942–43 were as follows: wheat, 290,158; oats, 242,365; barley, 35,261; and corn, 12,535. In 1943–44 the crops, in bushels, were: wheat, 7,700,000; oats, 2,100,000; and barley, 1,120,000. Phormium, or New Zealand flax, occupied 30,288 acres in 1942–43 (47,264 acres in 1941–42); and the growing of linen flax, an entirely new industry for the Dominion, accounted for 21,067 acres. In 1944 the crop of apples totaled 2,120,000 bushels; of pears, 260,000 bushels; and of hops, 750,000 pounds.

Pastoral Production.—Animal husbandry is the foremost pursuit of the country. With 33,083,318 sheep as of April 30, 1944, New Zealand ranked seventh among the sheep countries of the world; and in production of wool (340,000,000 pounds for the year ended June 30, 1943) it ranked fourth. In 1944 the total number of cattle was 4,476,200; of pigs, 581,000; and of horses, 239,000. The yield of butterfat per cow in 1943–44 was estimated at 240 pounds, the total butterfat produced in the country amounting to 422,700,000 pounds. Exports of butter in 1944 were valued at £NZ14,998,622; of cheese, £NZ7,270,331; of wool, £NZ16,306,591; and of frozen lamb, £NZ9,394,354. In 1942–43, 325,570 hundredweight of ham and bacon, to a value of £NZ1,860,931, was produced.

Mining Production.—No figures were available during the early years of the war showing the production of gold and silver. Gold production in 1943 amounted to 149,140 ounces; and silver, 280,786 ounces. The output of coal in 1942 was 2,680,041 tons, 4,997 persons being employed above and below ground; each person employed underground raised, on an average, 732 tons. Stone was quarried to a value of £NZ539,904 over the same period, and tungsten ore having a value of £NZ32,309 was mined. Other minerals mined included antimony, asbestos, iron, manganese, mercury, platinum, and scheelite.

Factory Production.—Because of the closing of sources of supply, during the war local manufacturers were catering to the Dominion's needs in many products which formerly were almost exclusively imported. There were 6,367 factories in operation in the fiscal year 1941–42, 117,214 persons being engaged chiefly in clothing manufacture, meat freezing, sawmilling, and printing and publishing; the value of the manufactures or products was £NZ155,566,195, of which £NZ53,315,335 was added in the process of production.

The Dominion's three-year-old stabilization plan was modified drastically on Feb. 14, 1945, when the government permitted labor unions dissatisfied with existing pay rates to apply to the Arbitration Court for review. Reconversion was commenced in July, when 184 businesses were removed from the essential list, their labor force being unfrozen and the supply of materials being affected. At outbreak of war, an aircraft plant was established at Rongotai, a suburb of Wellington, by the (British) de Havilland firm to build Tiger Moths and other training planes; the factory was reconverted in 1945 to produce 11-seat passenger planes adapted to New Zealand's civilian needs. A Ministery of Employment was created in September to aid in the rehabilitation of ex-servicemen and to assist workers requiring occupational adjustment or retraining.

External Trade.—Due largely to a decrease in the importation of defense materials and equipment, imports for the calendar year 1944 fell to £NZ86,686,531—compared with the record figure of £NZ95,148,017. The leading imports were cotton piece goods, electrical machinery, wireless equipment and other machinery, tea, sugar, and motor vehicles. Exports for the calendar year 1944 rose to £NZ77,704,663 (£NZ71,838,940 in 1943), a figure exceeded only in 1942 (£NZ80,875,132). These figures were not necessarily an indication of production in those years, for the volume exported depended greatly upon the availability of shipping. Principal exports were butter, cheese, wool, and meat either frozen, dehydrated, potted, or canned. The adverse balance of trade in 1944 was only £NZ8,981,868, compared with £NZ23,309,077 in 1943. Sterling balances in London were higher than ever, on Sept. 1, 1945, standing at stg.£66,610,417, a figure more than double that 12 months earlier.

Responding to an appeal to free more food for Great Britain, on June 1, 1945, the ration of butter for civilians of New Zealand was cut from 8 ounces to 6 ounces per person per week, and the meat ration was reduced from 1s. 9d. to 1s. 6d. per week for each person; these measures made a further 5,000 tons of butter and 15,000 tons of meat available for export annually.

Communications.—For the year ended March 31, 1944, there were 3,460 miles of railroads, all but 180 miles being state-owned. An all-time record was established by the railroads in 1943–44, when 38,611,267 passengers were carried and freight transported amounted to 10,109,821 tons; over 10,000,000 persons also used the road motor services operated by the railroad administration. At March 31, 1943, there were 53,238 miles of formed roads in the Dominion and, in addition, 5,799 miles of bridle tracks and 17,226 miles of unformed roads, giving a total road mileage of 76,263. The number of motor vehicles licensed at March 31, 1944, was 292,887, being one to every six persons in the country. With some 245,000 telephones, New Zealand has the world's third highest telephone development in proportion to population; a direct radiotelephone service between the Dominion and the United States was inaugurated in October 1945. During 1943–44 internal aviation services carried 38,145 passengers, 244,614 pounds of mail, and 191,114 pounds of freight; on overseas services, the figures were 2,924 passengers, 94,106 pounds of mail, and 40,024 pounds of freight. It was disclosed in 1945 that the longest civil air route in the world (15,000 miles) has been in operation since 1943 between New Zealand and Great Britain; it includes a 3,500-mile flight across the Indian Ocean from Ceylon to Western Australia, more than 24 hours in the air without alighting.

Principal Events of 1945.—Prime Minister Peter Fraser arrived in Britain late in March 1945 to participate in Commonwealth discussions prior to the meeting in San Francisco of the United Nations Conference on International Organiza-

tion; he declared that his country had the single motive of grasping this opportunity—which might well be the last—to build on victory an edifice of lasting peace. New Zealand's delegates at the conference were the prime minister and Carl A. Berendsen, the latter minister at Washington, and Sir Michael Myers, the Dominion's chief justice, a member of the United Nations Committee of Jurists; the prime minister served as chairman of the committee which framed the provisions of the United Nations charter on territorial trusteeship, a subject upon which there was wide divergence in views. The charter of the United Nations and the statute of the International Court of Justice were ratified by the New Zealand Parliament on Aug. 7, 1945.

During the year, the Dominion was also represented at several other conferences overseas, including the meeting in Australia of UNRRA's Committee of the Council for the Far East, the third session, in London, of the Council of UNRRA, and Commonwealth conferences on telecommunications and air transportation.

For the first time, both France and the Soviet Union appointed ministers to New Zealand, the former represented by Felix Alexis Armand Gazel, and the latter by Ivan Kornilovich Ziabkin. Sir Patrick Duff arrived in Wellington as the new high commissioner in New Zealand for the United Kingdom. In October 1945, Avra M. Warren was nominated by President Truman to succeed Kenneth S. Patton as United States minister to New Zealand.

Conclusion of hostilities brought particular recognition of the United States' contribution toward victory. "Today," said the prime minister, "we think of our friends, the Americans, treacherously attacked at Pearl Harbor and then, without even pausing to take breath, rallying their mighty forces, military and industrial, and sweeping ever westward until Japan began to crumble under their overwhelming attacks." New Zealand, too, had borne a full share of the burdens of war. In proportion to population, casualties among the Dominion's armed forces were considerably heavier than those suffered by the United States, and New Zealand supplied American troops in the Southwest Pacific with goods at a cost which eclipsed the value of lend-lease aid by the United States to the Dominion.

Social services were further extended during the year, including free dental service for adolescents to 19 years of age, an increase in the minimum income for needy families, and increases in superannuation and workers' compensation allowances. A Royal Commission was appointed by the government to inquire into the existing (alcoholic) licensing laws. Plans for reconversion included a program for the acquisition of land for veterans and provision of the requisite housing and communications; and improvements were to be effected in the railroad system. While few changes in tax rates were proposed in the 1945–46 budget, adjustments for industry provided a 7.5 per cent depreciation allowance, plus special authority to write down a plant's value 20 per cent over a 15-year period; the effect was to halve the tax value of the plant in that period. As part of the reconversion plan, manufacturers planned to spend £NZ2,875,000 on plant extension and £NZ2,000,000 on new equipment. For the purpose of eliminating double taxation, an agreement was contemplated with the British government whereby English companies establishing branch factories in New Zealand would be taxable in the United Kingdom on the total profits, subject to a credit for tax paid in New Zealand on profits made in the Dominion. Considerable opposition was forthcoming from financial circles to the government's proposal that the state should acquire all privately owned shares in the Bank of New Zealand; the state already owned one third of the stock and had the power to appoint two thirds of the directors. Nationalization of the institution, which did half the country's branch banking business, had been strongly advocated by the Labour Party, but critics considered that its transformation into a state trading bank might prove to be bad economics.

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NEWBERRY, Truman Handy, American industrialist and politician: b. Detroit, Mich., Nov. 5, 1864; d. Grosse Pointe Farms, Detroit, Oct. 3, 1945. Secretary of the navy in the Cabinet of President Theodore Roosevelt from Dec. 1, 1908, to March 6, 1909, and Republican senator from Michigan from 1919 to 1922, Mr. Newberry was a leading Michigan industrialist and one of the richest men in the United States. After graduating from the Sheffield Scientific School at Yale University in 1885, Mr. Newberry took over management of the family railroad and banking interests. He worked as superintendent of construction, pay master, and general freight and passenger agent of the Detroit, Bay City, and Alpena Railway (1885–87), and then became president and treasurer of the Detroit Steel and Spring Company (1887–1901). The advent of the automobile attracted his interest, and he was largely responsible for the founding of the Packard Motor Car Company and its establishment in Detroit. During the Spanish-American War, he served as navy lieutenant (j.g.) and during the First World War as lieutenant commander in the United States Naval Fleet Reserve, and also as assistant to the commander of the 3rd Naval District of New York. He was appointed assistant secretary of the navy in 1905. In 1918 he was elected to the United States Senate on the Republican ticket, defeating Henry Ford by 4,334 votes. While the Senate was preparing to investigate both the Newberry and Ford campaign expenditures, a federal grand jury in Michigan indicted Mr. Newberry on charges of criminal conspiracy to violate the federal corrupt-practices act, and he was fined $10,000 and sentenced to two years in jail on March 20, 1920. Investigations showed that more than $250,000 had been spent on his campaign, while the Michigan law put the maximum amount that could be spent at $3,750. The sentence was appealed and on May 2, 1921, the Supreme Court gave its decision reversing the verdict. The court held that the federal Constitution did not permit Congress to regulate primary elections, and the indictment covered the primary as well as the general election. Mr. Newberry formally took his place as a member of the Senate on Jan. 12, 1922, three years from the time he would normally have been accepted. He resigned 11 months later.

NEWFOUNDLAND and LABRADOR. Respectively, an island under British sovereignty off the east coast of Canada, and its dependency on the North American mainland. The area of Newfoundland is 42,734 square miles, and the population (1945) 308,022; Labrador, 118,400 square miles, population 4,930. Saint John's (pop., with suburbs, 82,543) is the capital and principal seaport of Newfoundland, and Corner Brook (11,-

000), Grand Falls (7,000), Bonavista (5,000), and Harbour Grace (2,300) are other towns, the two latter being also ports; chief port and settlement of Labrador is Battle Harbour (pop. 250), and Rigolet is a second small seaport. Newfoundland, Britain's oldest colony, acquired responsible government in 1855, and Labrador was confirmed in 1927 as under its jurisdiction. In 1940–41, "freely and without consideration," the United States obtained 99-year leases for military and naval bases on the Avalon Peninsula and on the southern coast of Newfoundland.

Government.—Because of financial difficulties, Newfoundland's dominion status was suspended in 1934 and administration was vested in a commission, with Great Britain assuming financial responsibility until the island again becomes self-supporting. A governor (the term of Vice Admiral Sir Humphrey Thomas Walwyn expires in January 1946) acts on the advice of a Commission of Government having six members, three of them from Newfoundland and three from Great Britain. Each commissioner heads departments of the administration, namely: public health and welfare; natural resources; justice and defense; public utilities; home affairs and education; and finance. Revenue for the financial year ended March 31, 1945, was $33,310,000, an increase of $4,709,000 over the preceding 12 months, and expenditure was $26,318,000, the surplus being $6,992,000. The national debt at the end of 1934–44 was $90,000,000. Estimated revenue for 1945–46 was put at $29,087,300 and expenditure at $28,404,300, leaving a prospective surplus of $683,000.

Religion and Education.—Of the total population, 92,732 adhere to the Church of England; 93,925 are Roman Catholics, 76,134 United Church, 1,460 Presbyterians, 18,054 Salvation Army, and 7,306 members of other denominations. The schools, although denominational, are supported by the government. In 1944–45 government grants for education amounted to $2,462,700. Education is compulsory between the ages of 7 and 14. There were in 1944, 1,164 schools, with an enrollment of 67,641. The University Memorial College had an enrollment of 254 in 1943–44.

Production.—The population chiefly inhabits the coastline, and fishing is the principal occupation. In 1943–44 exported products of the fisheries were valued at $18,486,226. Besides cod, which occupies the predominant place, the fisheries comprise salmon, herring, halibut, turbot, and lobster. Agriculture consists principally of vegetable production; the estimated value in 1943 was $5,900,000. Livestock included 17,000 horses, 25,000 cattle, 95,000 sheep, 12,000 pigs, 15,000 goats, and 450,000 head of poultry. Forest products exported in 1943–44 were valued at $1,915,514. Large paper and pulp mills at Grand Falls, on the east coast, and Corner Brook, on the west coast, produced in 1943–44, 251,536 tons of newsprint, 30,845 tons of suphite pulp, and 5,695 tons of unbleached pulp. All local manufactures exported in 1943–44, including paper and pulp, had a value of $42,397,415. Newfoundland is rich in mineral deposits. In 1943–44 exports of products of the mines were valued at $8,029,416. The quantities exported in 1943, and their value, was as follows: iron ore, 791,688 tons ($2,019,695); zinc concentrates, 261,299 tons ($1,701,777); lead concentrates, 42,561 tons ($1,414,535); fluorspar, 66,615 tons ($1,360,659); and copper concentrates, 20,498 tons ($937,621). Other minerals of economic importance include pyrophyllite and limestone. There are 30 fur ranches in Newfoundland, for foxes and mink, while the beaver is protected in special reserves; furs to the value of $242,420 were exported in 1943–44.

External Trade.—Exports in 1943–44 had a total value of $44,444,620; in the main, they comprised the products of the fisheries, mines, and forests. The value of imports in 1943–44 was $62,488,649, the principal items being flour, sugar, confectionery, boots and shoes, cattle and poultry feed, and leather. The United States provided the principal market for Newfoundland's exports, Great Britain being in second place; most of the imports came from Canada, the United States ranking second.

Communications.—There are 705 miles of government-owned railroads and 56 miles of private lines. The government system also operates coastwise steamships and, in summer, a triweekly ferry between Port aux Basques and North Sydney, Nova Scotia, where it connects with the Canadian National Railways. Highways total 6,440 miles in length; 6,677 automobiles and trucks were registered in 1943. The government operates 167 wireless telegraph stations and land line offices in Newfoundland, and 58 wireless telegraph stations in Labrador; radio telephony is available to all parts of the world. Gander Airport, the property of the Newfoundland and British governments, is used for passenger and mail services to Canada; as an interim and temporary arrangement, transatlantic aircraft of three United States companies use Gander for refueling and other service reasons but may not take on or discharge passengers or mail. Pan-American Airways and British Overseas Airways Corporations use Botwood, a seaplane base; and Torbay, near Saint John's, is used by a Canadian air transport company. The United States government has constructed on its bases two military airfields—Harmon Field, near Stephenville, and Argentia. In Labrador, the Canadian government has secured on 99-year lease an airfield at Goose Bay to be used for commercial purposes.

Principal Events.—Heavy expenditures made in Newfoundland for defensive purposes during the war helped substantially to put the island's finances in the black for the first time since the government went bankrupt in 1934. Each year since 1940 revenue has exceeded expenditures, the surpluses for five years totaling $23,926,000 gross, $22,676,000 net. With the possibility that the country will be able to continue solvent, prospects for restoration of self-government were studied by a small body set up by Great Britain in 1943, and as a result of its report proposals for a form of elected government to replace rule by an appointed commission were expected to be published early in 1946.

Over 11,000 Newfoundlanders volunteered for active service in the war. Besides 2,000 men in the Overseas Forestry Unit and 1,500 serving in the British Merchant Navy, 6,475 joined the British armed forces; casualties among the last totaled 551. In addition, 1,124 Newfoundlanders enlisted in the Canadian forces, 524 of them being women.

Provision for an extensive program of reconstruction was made in the 1945–46 budget, more than 60 per cent of the increased expenditure of $4,000,000 for the financial year being allocated for the purpose. Considerable additions were made to the sums to be spent on education and public health. The Newfoundland Indus-

trial Board, created by the government in 1942, undertook important hydrographic and geological surveys in 1945, and encouraged establishment of new industries by offering preferential tariff rates in respect to the importation of necessary materials. The Newfoundland Tourist Development Board, also, made plans for attracting additional numbers of summer visitors to the country through the greatly increased air transport facilities.

NICARAGUA. A Central American republic bounded on the north by Honduras and on the south by Costa Rica. Its area is stated as 57,143 square miles, although this is in doubt because of an unsettled boundary dispute with Honduras. The population according to the 1940 census was 983,160; it was estimated in 1942 at 1,030,700. A breakdown of the population shows 68 per cent *mestizos* (mixed blood), 17 per cent white, 10 per cent Negroes, and five per cent Indians. The country was conquered by the Spanish early in the 16th century and was named for an Indian chief, Nicarao. With the rest of Central America, it obtained independence in 1821 and became a separate state on the breakup of the Central American confederation in 1839. Its present constitution dates from March 22, 1939, and provides for a president popularly elected for a six-year term, a Senate of 15 members elected for six years, plus all elected ex-presidents (who serve for life), a Chamber of Deputies chosen on a population basis, a cabinet of secretaries of state, and a judiciary headed by a Supreme Court of Justice. The country is divided into 15 administrative departments and two *comarcas* (territories). The capital is Managua (pop., 1942 estimate, 118,448); other important cities are León (38,637), Granada (25,530), Masaya (21,070), Chinandega (16,321), Bluefields (10,099). President in 1945: Gen. Anastasio Somoza.

Religion and Education.—The prevailing religion is Roman Catholicism; the republic has one archbishopric and four bishoprics. Illiteracy is estimated at more than 70 per cent of the population. The latest available enrolment figures show 53,743 students in 840 elementary schools and 1,315 students in 19 secondary schools. Universities exist at Managua, León, and Granada.

Production.—Nicaragua is primarily an agricultural country. Of 20,000,000 acres considered suitable for cultivation, about 5 per cent are so utilized. The principal crops for domestic consumption are corn, beans, rice, potatoes, wheat, and sugar; coffee, sesame seed, and bananas are the chief export crops. The acreage planted to crops in 1944 was 395,491, of which 220,280 was in corn. A serious drought on the west side of the continental divide that began in August 1944 continued into 1945 and seriously reduced all agricultural production except in cotton. Coffee production in the 1944-45 season was estimated at 218,000 bags of 60 kilograms; this would permit an exportable surplus of about 197,000 bags. Production of sesame seed, second most important agricultural export, was approximately 8,000,000 pounds in 1944, a reduction of 500,000 pounds from the 1943 crop. The corn crop for the 1944–45 season was expected to be 2,200,000 bushels, a decline of 26 per cent from 1943–44. The rice crop for 1944–45 was estimated at 12,000,000 to 14,000,000 pounds, well under the production for 1943–44. Outlook for the banana industry was poor, due both to transportation difficulties and inroads of the Sigatoka and Panama blight diseases. Cotton production was estimated at 1,254,000 pounds; tobacco production at 1,000,000 pounds. Timber production increased somewhat in 1944 from that of 1943; 1945 pine production was estimated at 14,000,000 board feet. Other forest products included rubber, ipecacuanha root, and balsam of Peru. Chief items of industrial production are cigarettes, matches, cement, beer, rum, industrial alcohol, soda water, cotton textiles, shoes, furniture, and tiles. Cement production increased 211 per cent in the first quarter of 1945 over the corresponding period of 1944, production of matches increased 52 per cent for the same period, that of beer 18 per cent, but production of electricity dropped 18 per cent in the same period. Gold production in 1944 was 219,579.1 troy ounces (219,189 ounces in 1943); 1944 silver production was 254,457.2 troy ounces (in 1943: 254,989.2 ounces).

Communications.—Latest available statistics indicated 283 miles of government owned and 137 miles of privately owned railway, 3,151 miles of highway, an automotive vehicle registration of 1,484, approximately 1,510 telephones with 2,315 miles of line, 130 telegraph offices with 4,098 miles of line, eight radio broadcasting stations and about 6,000 receiving sets, and 138 postoffices. Principal recent highway projects have been the Pan American Highway and the Roosevelt Highway from the settled area around lakes Nicaragua and Managua to the Atlantic coast. Expenditures on highway construction in the early months of 1945 were close to $200,000 monthly. The Matagalpa detour on the Pan American Highway was expected to be an all-weather road by the end of the 1944–45 dry season and all-weather sections of the Atlantic Highway were expected to be completed by Jan. 1, 1947. Airplane transportation is furnished chiefly by Pan American Airways and Transportes Aéreos de Centro América (TACA), though two local aviation companies began operations in 1945.

Foreign Trade.—Total foreign trade for 1944 was estimated at $25,000,000 (imports $10,000,000 and exports $15,000,000), as against $28,970,000 in 1943. Chief items of 1944 imports were: textiles, $2,000,000; machinery and vehicles, $1,800,000; chemicals, $1,500,000; foodstuffs, $1,200,000; petroleum products, $1,100,000. Chief exports were: gold, $7,864,699; coffee, $3,700,000; rubber, $1,000,000. The basic quota for coffee production is 195,000 bags of 60 kilos; this figure was increased for the 1944–45 season to 274,897. Coffee exports to the United States in 1943–44 totaled 218,188 bags. The coffee export tax was reduced 50 per cent by decree of Dec. 16, 1944. It was expected that about 10,800 metric tons would be exported in 1945 as against 13,176 tons in 1944 and 11,967 tons in 1943. Lumber and log exports in 1944 were 13,679,580 board feet valued at $661,719 as against 11,941,965 board feet valued at $529,998 in 1943. Trade figures for 1945 are necessarily incomplete. Gold exports in the first five months were valued at $3,108,887, more than 11 per cent below the value of gold exports for the same period of 1944. Rubber exports for the first five months of 1945 were 1,305,512 pounds as against 1,475,231 pounds for the same period in 1944. Coffee exports from October 1944, through June 1945, were 158,508 bags.

Finances.—The 1944-45 budget balanced at 54,114,871 córdobas (córdoba = approximately

20 cents); this represented a 20 per cent increase over the budget for 1943–44; the budget for 1936–37 was only C4,876,237. The largest increase in 1944–45 was in the Department of Public Administration (57.7 per cent more than in 1943–44); the largest appropriations were: development and public works, C7,154,158; government railways and ships, C6,550,723; and war, navy, and aviation, C6,010,370. Largest items of estimated receipts were: internal revenues, C19,723,200; and customs, C10,202,000. The budget for 1945–46 was rumored early in 1945 to be calculated at more than C50,000,000. Total public debt, March 24, 1945, was $5,083,423; more than half of this was in the form of Export-Import Bank loans. The stabilization fund on June 30, 1945 contained $7,509,855, a decrease of 22 per cent in one year.

Economic Conditions.—Though most indices of industrial production were up in 1944, general economic conditions were unfavorable. These included the rapidly rising cost of living, the continued shipping shortage (less acute by the spring of 1945), the government's ineffective price control system, a serious drought, and lack of adequate agricultural machinery. Inflation and the application of a new labor code April 2, 1945, led to some strikes. The government increased wages of railway workers by 20 per cent on Feb. 10, 1945, and announced plans for construction of 6,000 low-cost dwellings within a four-year period. Total monetary circulation June 30, 1945, was C46,512,975 as against C38,325,293 one year earlier. Bank deposits April 30, 1945, were C47,762,981 as against C52,108,691 one year earlier. The National Bank by June 30, 1945, had loaned C4,248,917 for agricultural development but retail prices of many staple foods had by the early part of 1945 risen by from 50 to 500 per cent. Dollar exchange continued short in mid-1945. The government on June 27 extended its production contract with the Rubber Development Corporation for two years.

Principal Events.—Political conditions, which had been highly disturbed in 1944, were less upset in 1945, with the result that President Somoza in mid-1945 felt free to hint that he might be a candidate for re-election in 1947 despite earlier pledges to the contrary. The Nicaraguan delegation to the Mexico City conference sponsored a resolution for adherence to the Atlantic Charter, adopted March 6, 1945; Nicaragua had earlier embodied the principles of the Atlantic Charter in her constitution. The government on July 6, 1945, became the first in the world to ratify the United Nations Charter. Representative Izac (Dem., Calif.) on Jan. 7, 1945, introduced a bill in the United States Congress to construct a canal across Nicaragua at a cost of $500,000,000. President Roosevelt on March 22 nominated Fletcher Warren of Texas as the new United States ambassador to Nicaragua; he presented his credentials May 10. A United States military mission headed by Lieut. Gen. G. H. Brett and Rear Admiral H. F. Kingman arrived at Managua May 27 for conferences. The Nicaraguan Congress received a bill May 9 to allow full woman suffrage. Ex-President José María Monchada died February 23.

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NICOBAR. See ANDAMAN AND NICOBAR ISLANDS.

NIGER. See FRENCH WEST AFRICA.

NIGERIA. See BRITISH WEST AFRICA.

NIMITZ, Chester William, United States naval officer: b. Fredericksburg, Texas, Feb. 24, 1885. As commander in chief of the United States Pacific Fleet from December 1941, and commander of the Pacific Area, Fleet Admiral Nimitz had administrative control of all ships and naval shore bases in the Pacific, and strategic command of all that vast ocean (with the exception of those areas under General MacArthur's jurisdiction) for the Allied war against Japan. At the time he was jumped to his Pacific command over 28 senior flag officers, he was junior rear admiral and chief of the Bureau of Navigation. He used a badly crippled post-Pearl Harbor fleet to excellent advantage in the first bitter months after the Japanese attack, and later directed its recovery and development into the greatest naval force ever assembled by any one nation. His brilliant conduct of naval operations in the Pacific made possible General MacArthur's return to the Philippines in October 1944, and by the spring of 1945, had almost completely nullified the Japanese Navy. On August 29, 1945, Admiral Nimitz was flown from his Guam headquarters to board his flagship in Tokyo Bay after Japan's unconditional surrender. On Sept. 2, he signed the surrender document for the United States aboard the battleship *Missouri.* On October 5, he was accorded a hero's welcome in Washington, D.C.; addressed a joint session of Congress; and was awarded his third Distinguished Service Medal by President Truman. On November 26, his nomination to succeed Fleet Admiral Ernest J. King as chief of naval operations was confirmed by the Senate. Nimitz has held the rank of admiral of the fleet since December 1944. A graduate of the United States Naval Academy (1905), he spent many years in the submarine service.

NITROGEN. In June 1944, it had been anticipated that at least 675,000 tons of nitrogen would be obtainable for fertilizers, or about 7 per cent more than the 630,000 tons used in 1943–44. In September, estimates placed the possible supply at only 530,000 tons, but in November expectations had risen slightly to 576,000 tons. The annual nitrogen capacity of the United States in April 1945 was about 1,450,000 tons, of which 750,000 tons was of government plants and 700,000 tons of plants belonging to private owners. In 1944 large quantities of natural sodium nitrate and much smaller quantities of potassium-sodium nitrate continued to be imported from Chile under a wartime subsidy whereby the United States government absorbs some of the increased costs. However, the shortage of ships resulting from worldwide military and naval operations caused a bottleneck in the movement of Chilean nitrate to the United States. In October 1944 the War Production Board established an A-3 shipping priority for 850,000 tons of 16 per cent Chilean nitrate of soda for the year ending June 30, 1945, a figure considerably more than the reported 597,000 brought in during the 1943–44 fertilizer year. Ammonium nitrate was produced in both government and private plants in 1944, and considerable quantities were imported from Canada. Although production figures are not available, the consumption in the 1943–44 fertilizer season for fertilizers was approximately 300,000 tons.

NOCK, Albert Jay, American essayist, historian, and critic: b. 1873?; d. Wakefield, R.I., Aug. 19, 1945. An avowed Jeffersonian and an ardent disciple of Henry George, Mr. Nock wrote many provocative books and essays in which he championed individualism and condemned the present-day tendency toward statism. Among his books are *How Diplomats Make War* (1916; with Francis Neilson); *The Myth of a Guilty Nation* (1922); *Jefferson* (1926); *On Doing the Right Thing* (1928); *Francis Rabelais* (1929; with Catherine Rose Wilson); *The Book of Journeyman* (1930); *The Theory of Education in the United States* (1932); *A Journal of These Days* (1934); *Our Enemy, the State* (1935); *Henry George* (1939); and *Memoirs of a Superfluous Man* (1943).

NORFOLK ISLAND. A dependency of the Commonwealth of Australia, in the Pacific Ocean, 930 miles east of Sydney, New South Wales, and 630 miles northwest of Auckland, New Zealand. It is approximately five miles long and three miles in breadth, the area being 10.2 square miles; population (1940) 896. The climate is healthful and the soil fertile; lemons, figs, grapes, pineapples, bananas, and beans are cultivated, and the fishing is excellent. Kingston is the principal settlement. An administrator (Sir Charles Rosenthal) is assisted by an Advisory Council having 8 elected members. The island was discovered by Capt. James Cook in 1774. Between 1788 and 1805, and again between 1826 and 1855, Norfolk Island was a penal settlement for convicts transferred from New South Wales. In 1856 many of the inhabitants of Pitcairn Island were brought thither by the British government.

NORRIS, Charles Gilman, American author: b. Chicago, Ill., April 23, 1881; d. Palo Alto, Calif., July 25, 1945. Brother of the novelist, Frank Norris, and husband of the popular author, Kathleen Norris, Charles G. Norris wrote novels which dealt with controversial subjects of the moment. His best known works are *Brass* (1921), a novel dealing with modern marriage; *Bread* (1923), a book about women in business; and *Seed* (1930), a novel on birth control which sold 70,000 copies in its original edition.

Mr. Norris met his future wife, Miss Kathleen Thompson, in 1908, and they were married in New York the next year. During the First World War, he served as a major in the army. His first published novel, *The Amateur,* appeared in 1915. Other novels include *Salt* (1917); *Pig Iron* (1925); *Zelda Marsh* (1927); *Zest* (1923); *Hands* (1935); *Bricks Without Straw* (1938); and *Flint* (1944). He also contributed many short stories to magazines and wrote several plays which were produced by the Bohemian Club of San Francisco, of which he was a member.

NORTH BORNEO, British. See BORNEO.

NORTH CAROLINA. South Atlantic state, United States; one of the original thirteen states. Population (1940): rural, 2,597,448; urban, 974,175; total, 3,571,623. Land area, 49,142 square miles, divided into 100 counties. Chief cities, with 1940 populations: Charlotte, 100,899; Winston-Salem, 79,815; Durham, 60,195; Greensboro, 59,319; Asheville, 51,310; Raleigh, the capital, 46,897; High Point, 38,495; Wilmington, 33,407.

Chief State Officers, 1945.—Governor, R. Gregg Cherry; lieutenant governor, L. Y. Ballentine; secretary of state, Thad Eure; treasurer, Charles M. Johnson; auditor, George Ross Pou; attorney general, Harry McMullan.

Judiciary.—Chief justice of the state supreme court, W. P. Stacy; associate justices, Michael Schenck, W. A. Devin, M. V. Barnhill, A. A. F. Seawell, J. Wallace Winborne, E. B. Denny.

Legislature.—The state's General Assembly (Senate, 50 members; House of Representatives, 120 members) convenes biennially in odd years.

Education.—At last report (1943–44), there were 3,512 public elementary schools (grades 1–8) in the state, with 19,754 teachers and 699,965 pupils. Public high schools (grades 9–12) numbered 980, with 6,174 teachers, and 133,650 students. Public elementary and high school teachers received an average yearly salary of $1,120. Education in North Carolina is compulsory for all children between the ages of 7 and 14, inclusive. There are six teacher training schools in the state, three of them for Negroes. There is also Pembroke State College for Indians. Total state appropriation for education below college grade, and including administrative costs (1945–46), $47,757,519; total estimated appropriation by cities and counties, $6,000,000. State superintendent of public instruction, Clyde A. Erwin.

Finances.—Following is a statement of North Carolina's finances for the fiscal year 1944–45, supplied by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$ 70,124,826.47
Receipts, 1944–45	401,575,457.07
Total	$471,700,283.54
Disbursements, 1944–45	389,866,928.59
Balance, beginning of fiscal year 1945–46	$ 81,833,354.95

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Production Preliminary 1945
Corn (1,000 bu.)	47,516	51,524	54,512
Oats (1,000 bu.)	5,602	8,151	8,568
Wheat (1,000 bu.)	6,112	8,928	6,412
Barley (1,000 bu.)	428	1,170	922
Rye (1,000 bu.)	461	399	330
Cotton (1,000 bales)	604	710	430
Hay:			
Tame (1,000 tons)	1,003	1,121	1,309
Soybeans for beans (1,000 bu.)	1,922	2,058	2,088
Peanuts (1,000 lb.)	287,180	343,910	343,200
Pecans (1,000 lb.)	2,396	2,300	2,730
Sweet potatoes (1,000 bu.)	8,235	8,970	7,350
Tobacco (1,000 lbs.)	550,482	755,606	843,925
Potatoes (1,000 bu.)	8,778	6,970	8,424
Peaches (1,000 bu.)	1,892	2,698	2,172
Pears (1,000 bu.)	317	354	360
Grapes (tons)	6,150	6,600	3,700

NORTH DAKOTA. West North Central state, United States; admitted to the Union Nov. 2, 1889. Population (1940): rural, 510,012; urban, 131,923; total, 641,935. Land area, 70,054 square miles, divided into 53 counties. Chief cities, with 1940 populations: Fargo, 32,580; Grand Forks, 20,228; Minot, 16,577; Bismarck, the capital, 15,496.

Chief State Officers, 1945.—Governor, Fred Aandahl; lieutenant governor, C. P. Dahl; secretary of state, Thomas Hall; treasurer, Otto E. Krueger; state auditor, Berta E. Baker; attorney general, Nels Johnson.

Judiciary.—Chief justice of the state supreme court, A. M. Christianson; judges, Thomas J. Burke, A. C. Burr, James Morris, W. L. Nuessle.

Legislature.—The state Legislative Assembly (Senate, 49 members; House of Representatives, 113) convenes biennially in odd-numbered years, on the first Tuesday after the first of January.

Education.—Public elementary schools (as of June 30, 1944): one-room rural, 3,141; graded and consolidated, 204. Public schools which also include the elementary schools: fully accredited high schools, 87; minor accredited high schools, 90; three-year high schools, 21; two-year high schools, 64. Total number of elementary school teachers, 5,229; total number of high school teachers, 1,490. Total number of elementary school pupils, 90,371; high school pupils, 27,033. Average yearly salary of all public school teachers in the state, $1,171. Education in North Dakota is compulsory for all children between the ages of 7 and 15, inclusive, or until the 17th birthday if the 8th grade has not been completed. There are 5 teacher training schools in the state. Colleges and universities receiving state aid: State Agricultural College, Fargo; University of North Dakota, Grand Forks; State School of Science, Wahpeton; State School of Forestry, Bottineau. Total state appropriation for elementary and high schools, $1,875,000 (state equalization fund) and $911,073.88 (state apportionment). State superintendent of public instruction, Arthur E. Thompson.

Finances.—The following statement of North Dakota's finances for the fiscal year 1944–45 was supplied by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$33,377,409.03
Receipts, 1944–45	39,530,307.60
Total	$72,907,716.63
Disbursements, 1944–45	40,397,140.42
Balance, beginning of fiscal year 1945–46	$32,510,576.21

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Production Preliminary 1945
Corn (1,000 bu.)	19,280	36,250	26,664
Oats (1,000 bu.)	40,050	82,041	83,266
Wheat (1,000 bu.)	84,362	161,630	161,931
Barley (1,000 bu.)	33,018	59,062	57,336
Rye (1,000 bu.)	8,346	2,016	2,030
Flaxseed (1,000 bu.)	4,415	7,661	12,328
Hay:			
Alfalfa (1,000 tons)	163	293	272
Tame (1,000 tons)	1,139	1,122	1,042
Wild (1,000 tons)	1,334	2,060	1,761
Potatoes (1,000 bu.)	13,249	20,875	23,010

NORTHERN IRELAND. See IRELAND.

NORTHERN RHODESIA. See RHODESIA.

NORTHERN TERRITORY. See AUSTRALIA.

NORTHWEST TERRITORIES. Official designation of the mainland portion of Canada lying north of the 60th parallel of latitude between Hudson Bay on the east and Yukon Territory on the west, together with the islands lying between the mainland of Canada and the North Pole including those in Hudson Bay, James Bay, and Hudson Strait. The area of the Territories is 1,309,682 square miles; the population, according to the 1941 census, was 12,028, including 2,284 whites, 4,334 Indians, 5,404 Eskimo, 6 others.

Government. — Government is administered from Ottawa by a commissioner, a deputy commissioner, and five councilors, appointed by the governor in council. For administrative purposes, the Northwest Territories have been divided into the provisional districts of Mackenzie, Keewatin, and Franklin. The administrative headquarters for Mackenzie District is at Fort Smith. A government medical officer at Aklavik acts as administrator for the lower Mackenzie and Western Arctic regions. The main office for transaction of mining business is at Yellowknife.

Transportation and Communication.—Transportation in Mackenzie District is provided by air services in summer and winter, by river steamer services in summer, and by tractor roads in winter. All-weather roads in the vicinity of principal settlements also permit limited truck and motor traffic. Construction of an extension to the portage road along a hazardous stretch of Great Bear River to the outlet of Great Bear Lake was commenced in 1945. Completion of this road will help expedite shipments of concentrates from Eldorado Mine to railhead at Waterways, Alberta. An agreement was also negotiated between the Province of Alberta and the Dominion government for the construction in 1946 of an all-weather road from railhead at Grimshaw, Alberta, to Great Slave Lake, N.W.T. This road, when completed, is expected to facilitate the transportation of freight to Yellowknife and the lower Mackenzie Basin. Medical centers, trading posts and other places in the Eastern Arctic are served by the annual supply ship from Montreal, and by auxiliary services from railhead at Churchill on Hudson Bay. Postal service is provided regularly throughout Mackenzie District by air, and radio communication is maintained the year round between points in the Territories and the provinces through government and private commercial radio stations.

Trade and Industry.—The fur trade and mining are the principal industries. A limited amount of fishing, lumbering, and agriculture is also carried on in Mackenzie District for domestic purposes. Fur-trading is controlled by regulation, and posts have been established by private enterprise throughout the regions tributary to the Arctic Coast, Hudson Bay, and the Mackenzie Basin. More than 750,000 square miles have been set aside as native game preserves for the exclusive use of the native population. The value of fur harvested in the Territories during the year ended June 30, 1944, has been estimated at $1,510,500.

Mining.—Mining activity in the Mackenzie District in 1945 included the production of uranium concentrates, petroleum, and gold. Recent developments in atomic research, including the atomic bomb, have focused attention on the mine of Eldorado Mining and Refining on Great Bear Lake. This property—one of the world's principal sources of uranium and radium—was expropriated by the government of Canada in January 1944, and has since been operated at capacity by a crown company. Figures relating to tonnage of ore mined, milled and shipped to the refinery at Port Hope, Ontario, are treated as confidential.

The production of petroleum products at Norman Wells in the lower Mackenzie Basin declined, following suspension of Canol Project activities on March 8, 1945, at the request of the United States government. The pumping of crude oil through the pipeline from Norman Wells to White Horse, Yukon Territory, and operation of the refinery at White Horse was also discontinued. Sufficient wells were left in operation to meet the needs of the refinery at Norman Wells, which supplies the petroleum requirements of Mackenzie District. Explorative drilling is being continued in the Norman Wells region by Norman Exploration, a subsidiary of Imperial Oil, Limited.

Gold production was resumed in Mackenzie District with the reopening of the mill of Negus Mines, Limited, in July, 1945. Other mines, that temporarily suspended operations in 1942–43 as a result of labor shortages, are expected to resume milling in 1946. Explorative drilling and prospecting has been carried out on a large scale in the Yellowknife Mining District, where more than 15,000 claims were in good standing on Nov. 30, 1945. Many small, but rich gold discoveries have been made, and active development is being carried out on several of the more promising properties.

A broad program of field investigation was continued during the summer. This work included geological, topographical, horticultural, and geographical surveys, and an investigation of fresh-water fisheries. An addition to the settlement of Yellowknife was surveyed, roads in the vicinity were improved and extended, and the government administrative staff augmented to meet the requirements of a large increase in population.

R. A. GIBSON,
Deputy Commissioner, Northwest Territories.

NORWAY. A country of northern Europe which comprises the western and northern part of the Scandinavian Peninsula, an area of 124,556 square miles, and has an estimated population (1939) of 2,937,000. The country is divided into 20 provinces. The principal cities are Oslo, the capital, formerly known as Kristiania (est. pop. 1938, 275,000), Bergen (est. 1938, 106,500), Trondheim (1930, 54,458), Stavanger (46,780), and Drammen (25,493).

The beginnings of the Norwegian nation date back to 872. From the 15th century to the 19th Norway was united with Denmark. Copenhagen was the seat of the administration and of what might be called the official culture. Norwegians were required to use the Danish language. Principally as a result of the Napoleonic wars, in which Denmark sided with France, the Danish king was forced to renounce his right to the Norwegian crown at the Peace of Kiel, in 1814, in favor of the king of Sweden. Norway, however, refused to submit to this arrangement, and so a number of representative Norwegians met at Eidsvoll that same year and elected their own candidate for the crown. A constitution was drawn up at the same time and adopted. It was founded on the old Norse traditions and laws but had gained fresh impulse from the French Revolution and from the American War of Independence. Ever since then it has been the rock on which Norwegian life is founded.

The Eidsvoll negotiations were not allowed to achieve their object completely. The important European powers supported the Kiel agreement and backed the Swedish king in his claim to the throne of Norway. In due time, therefore, a compromise was reached, the chief feature of which was that the Norwegians should be a sovereign people, linked to the Swedes by a personal union only, with the Swedish king as the ruler of both.

Strained relations with Sweden lasted until 1905, when Norway's Parliament dissolved the union in behalf of the Norwegian people. A prince of the Danish royal house, Prince Carl, was elected king of Norway and came to the throne shortly afterwards, under the name of Haakon VII. According to the constitution of 1814, as modified at various times, legislative power was vested in the Storting, comprising the Lagting and Odelsting.

On April 9, 1940, Germany—without warning—launched a blitzkrieg invasion of Norway and Denmark. For 62 days Norwegian, British, French, and Polish troops fought on in Norway, but on June 17, King Haakon announced that further resistance on Norwegian soil would be impossible, that it would be necessary to evacuate the government to England. Headquarters then were established in London. On Sept. 25, 1940, Major Vidkun Quisling was appointed by the Germans as the foremost member of a puppet Cabinet responsible to the German Reich commissioner, Josef Terboven.

Agriculture.—During the period of German occupation (April 1940 to May 1945) many of the Norwegians learned to grow their own potatoes and tobacco, and developed many substitute foods. Following the Nazi collapse the Norwegian farms (representing only about 3.6 per cent of the area of this mountainous country) were reported to have been producing below their capacity because of diversion of manpower and lack of fertilizer. By June 1945, most of the land had been planted, and the crops were well advanced.

Dairy cattle had been reduced in numbers by about 15 per cent, and they were producing about 30 to 45 per cent less milk and butter than before the war owing to the cutting off of their supply of proteins. It was believed that Norway's dairy industry could be brought back to normal levels within a year.

Fisheries and Merchant Marine.—In the past, Norway depended largely on the income from a large merchant marine, her whaling fleet, and her fisheries to offset a somewhat meager agricultural and industrial production. During the German occupation, Norway's fisheries provided large quantities of food for herself, Germany, and other European countries dominated by Germany, in addition to relieving a serious fodder shortage by yielding quantities of fish meal for domestic livestock. The lack of boats, equipment, fuel and lubricants and proper food and clothing for the fishermen was aggravated during the occupation by the labor shortage; and by far the largest part of every catch was requisitioned immediately on landing by the Germans. In January 1944 it was reported that some 450 Norwegian fishing vessels formerly using gasoline had been converted to the use of producer gas. As soon as the Germans were expelled (May 1945) efforts were begun to restore the fishing fleet to its prewar capacity. In the meantime, cod, herring, and hake, leading products of the fishing industry, the best of which had for years been diverted to Germany, could now be used much more freely as meat substitutes in most Norwegian homes.

The Norwegian merchant marine, fourth in world tonnage prior to the war, supported about 4 per cent of the population. When the German armies invaded Norway about five sixths of the total merchant tonnage was in ports outside the country. All of these ships, including the entire tanker fleet of 220 to 240 ships, served the Allies during the occupation. Acting quickly after the German attack, the Norwegian government requisitioned for war service all Norwegian merchant ships; only those in German controlled ports or waters were unable to heed this order. The result was that the Allied fleet was immediately increased by more than 1,000 ships manned by some 25,000 experienced Norwegian seamen.

Industry and Labor.—Prior to the German occupation, industry furnished a livelihood for about 27 per cent of the population; and among the

leading industries, in addition to the fisheries, were lumber dressing, pulp and paper manufacturing, and the processing of chemicals and metals. Other products were textiles, clothing, shoes, and leather, most of them dependent on the country's abundant water power resources. Current statistics are unavailable.

Norway's productive forests, largely pine, covering 24.2 per cent of the country's land area, constitute its principal natural resource. During 1944, Norwegian forests continued to be heavily overcut because of heavy German demands for lumber of all kinds and the urgent need for fuel. In 1941–42 the felling program called for 14,000,000 cubic meters, approximately 40 per cent more than the annual growth and from 70 to 100 per cent more than the normal annual cut before the war. After the expulsion of the Germans (May 1945) most of the forests, particularly in the north, were found in relatively good condition, a circumstance attributed mainly to the fact that the invaders had been unable to find means of transporting much of the timber.

Textile and leather industries lacked raw materials formerly imported and were in serious condition. Clothing and footwear became extremely difficult to obtain in Norway.

Under the supervision of German officials, a voluntary work service was established under a Norwegian administrative council in June 1940. Later, however, the Germans introduced compulsory labor service, applying both to men and women. This step was taken because very few Norwegians availed themselves of the opportunity to work on German wartime projects—despite much increased wages. By 1944 many thousands of Norwegians had been drafted for service on German fortifications and industrial projects in Norway, Poland, Germany, Denmark, France.

Minerals.—Although Norway's mineral resources are important, consisting of iron ore, sulphur, pyrites, nickel ore and copper ore, mineral fuel deposits are small and the mining output showed a decline during the years prior to the invasion of Norway. The total value of mineral products in 1938 was 238,173,000 kroner, including ores, metals and alloys. The Germans attempted to increase the exploitation of pyrites, copper, molybdenite, and ferroalloys. Molybdenite has great military value and Norway is the only European country to produce this mineral of vital importance in the production of high-grade steel. After the liberation it was found that while the Germans had removed large quantities of valuable minerals, and had left much of the equipment in a worn-out condition, the industry had been left relatively intact.

Foreign Trade.—Statistics of Norwegian trade since the German occupation have not been made available, but according to German and Continental sources, the Reich took increased quantities of Norwegian fish products, wood pulp, lumber, and mineral products during the occupation. Domestic trade in 1943 was stagnant.

Communications.—Public highways in 1938 totaled 25,720 miles; and railways, state and private, 2,472. During the German occupation there was some work on highway construction entailing the employment of more than 32,000 Norwegians and several thousands of Germans. It is reported that the new highways were patterned after the motor highways of Germany.

Lack of fuel continued to cripple transportation and motorized shipping in 1944. By the middle of 1942 only about 10,000 motor vehicles of the 46,000 in use prior to the occupation remained in use, most of them using substitute fuels, and toward the end of 1943 a Nazi decree ordered that all motor vehicles should be converted to producer gas or some other substitute fuel.

In January 1945 it was estimated that Norway, largely dependent on her maritime trade, would need new merchant shipping tonnage to the extent of 350,000 gross tons annually for the next ten years. Of the needed ships—including cargo liners, and many fruit ships—Norway itself, it was expected, would be able to build only about 50,000 tons per year.

Limited mail service to Norway was resumed in May 1945, and ordinary mail, parcel post and air mail in July.

Finances.—The budget for the fiscal year 1940-41, proposed before the German invasion in April 1940, indicated revenue and expenditures of 790,256,000 kroner as compared with revenue and expenditures of 624,631,000 kroner in the 1939–40 estimates. The total public debt on June 30, 1939, was 1,464,200,000 kroner, of which 596,400,000 kroner were held in foreign debt, and 867,800,000 kroner in internal debt.

About half of the total budget of the Royal Norwegian government in London during the last six months of 1943 (the first half of the 1943–44 fiscal year) provided for expenditures in behalf of Norway's armed forces.

The Armed Forces.—Before the occupation of the country by Germany in 1940, the army of Norway was a national militia in which service was universal and compulsory, commencing at the age of 18 and continuing to 55. Active service was for 84 days. The permanent forces in 1939 included 1,135 officers and 765 noncommissioned officers. The Norwegian Navy was designed almost solely for coastal defense.

During the occupation of Norway the country was "policed" by German troops. Most of the Norwegian Navy was destroyed during the first days of the German invasion, but after that time the navy was rebuilt to the point that before the end of the war in Europe it was considerably larger than ever before. In 1944 it included more than 55 vessels. This fleet operated in conjunction with the British and American fleets.

The army and air force also were very considerably enlarged following the establishment of the government in London in the summer of 1940.

Religion and Education.—Under the constitutional monarchy, the Evangelical Lutheran Church was established as the state church, and as such was maintained by state funds. But there was complete religious freedom. After the invasion the church unrelentingly opposed every expression of nazism.

Primary education (reported as of 1937–38) is free and compulsory. The school age, in urban areas, is from 6½ to 14 years, and from 7 to 14 years in rural districts. Thereafter, children attend an intermediate school (roughly equivalent to the American high school and junior college combined) for five years. This school is called a *gymnasium*. Advanced training in the sciences, classics, languages, the professions, theology, forestry, may be obtained at one of several institutions of higher learning, of which the chief is the University of Oslo in the capital city.

There are also technical high schools, agricultural schools and many special schools, including institutions for abnormal children and reformatories for neglected children.

Principal Events of 1945.—At the turn of the year, only a small fraction of Norway, the north-

eastern tip of the country, had been liberated. All the more important cities and provinces were still in German hands and were being prepared for fanatical defense. The German plan was to turn Norway into a northern pendant to the much-publicized "Alpine Redoubt," principally with a view to continuing submarine warfare from such formidable bases as had been established at Trondheim, Bergen, Tromsö, and Narvik, among other places.

Militarily, the progress of liberation was slow. In mid-January, Norwegian forces, in co-operation with the Russians, reported a substantial advance westward from the Finnmark bases taken in 1944, but the offensive soon came to a standstill owing to winter conditions and the systematic devastations carried out by the retreating Germans in a naturally difficult terrain. Plainly, the bulk of the country could expect liberation only from a large-scale operation in the west, or as a result of Germany's total collapse. Up to the last, it remained doubtful which strategy the Allies had decided upon and how the Germans would react to it.

Thus for the vast majority of Norwegians, there were a few more hard months ahead and spokesmen of the government-in-exile in London repeatedly drew attention to the grave plight of the homeland. The food situation in Norway, in the early months of 1945, was as bad as anywhere on the Continent, with the possible exception of Holland, and the Nazi terror increased in fury as defeat loomed nearer. On February 8, the chief of Quisling's Norwegian Gestapo, "General" Karl Marthinsen, was shot and killed by patriots, on his way to his office. In retaliation, the Nazis executed 38 Norwegian hostages, including several prominent personalities. Fourteen more were put to death in mid-March after saboteurs had blown up the railroad administration building in Oslo.

Meanwhile, Vidkun Quisling, anxiously watching the handwriting on the wall, engaged in desperate maneuvers to extricate himself from the trap of his own making. On January 28, he was received by Hitler and Ribbentrop, pleading with them for hours (1) not to give up Norway on any pretext, and (2) to grant greater autonomy to his puppet government. Back in Oslo, on February 1, Quisling had the Parliament Building solemnly "returned" to his government by the Germans, hoisting the Norwegian flag over it, in a comedy designed to impress the nation with his patriotism and increased authority. And on February 16, his protector, Reichskommissar Josef Terboven, publicly promised that the Germans would hold and defend Norway to the last man. On April 10 Terboven, flanked by an impressive array of German generals and police officials, reaffirmed this pledge at a mass meeting held in the auditorium of Oslo University.

But it was all to no avail and a few weeks later the collapse came with dramatic suddenness and finality. The course of events closely paralleled those in Denmark except in the final phase. On May 1 the underground began to come out into the open, with patriotic demonstrations and overt disregard for German authority. A proclamation by General Boehme, commander of all German forces in Norway, lamenting Hitler's death and pledging allegiance to Doenitz, received scant attention. On the night of May 2, a special task force of the Norwegian home front seized vital archives and records which the Nazis and quislings attempted to burn. There followed a few days of general uncertainty and anxious suspense when it was learned that the surrender, on May 4, of the German forces in the Netherlands, Denmark, and northwestern Germany did not include Norway. As late as May 5 the Gestapo carried out mass arrests in Oslo, but the following day prisoners at Grini concentration camp and elsewhere were released through the intervention of a high Swedish police official, Harry Soederman, who had come to Oslo with German consent and played an important role in the transition period. On the morning of May 7, the home front went into action throughout the country, seizing public buildings and communications. Later in the day it became known that Germany had capitulated on all fronts, including Norway. Instantly jubilant crowds filled the streets, cheering the exiled king and singing patriotic songs. For a while it looked as though the Norwegian Nazis would continue resistance on their own as home front groups began a roundup of traitors and collaborationists, but better counsel prevailed and the Nazis laid down their arms practically without bloodshed.

Quisling himself surrendered on the morning of May 9, after a short-lived attempt to entrench himself in his palatial villa at Bygdoe, outside Oslo; he was immediately lodged in the central prison. Eight of his "ministers" were also arrested, but two others, Sverre Riisnaes and Jonas Lie, along with Norway's No. 1 war criminal, Henrik Rogstad, former chief of police, barricaded themselves in a fortified estate. Riisnaes eventually surrendered, while Lie and Rogstad committed suicide. The two most prominent Germans in the country, Terboven and his Gestapo chief, Wilhelm Rediess, blew themselves to bits with dynamite in the elaborate underground fortress which the Reichskommissar had built under Skaugum Castle, his headquarters.

On May 13 Crown Prince Olav, commander in chief of all Norwegian forces, and three Cabinet ministers arrived in Oslo aboard a British destroyer. Premier Johann Nygaardsvold and the rest of the Cabinet returned to their country on May 31. But King Haakon purposely postponed his triumphal homecoming until June 7, a date doubly significant for it was on that day in 1940 that he and his government had been forced to flee Norway and it was the 40th anniversary of Norway's secession from Sweden. In contrast with so many other exiled regimes, both the king and the Nygaardsvold government had managed to retain the fullest support of the home front throughout their five years of absence from Norway and they were given an equally spontaneous and enthusiastic welcome by the populace.

In conformity with Premier Nygaardsvold's oft-repeated pledge that the "London government" would step down as soon as Norway had been completely liberated, the entire Cabinet resigned on June 12. Parliament was reconvened on June 14. It was generally agreed that the new government should be recruited primarily from the ranks of the home front, but Chief Justice Paul Berg, who had headed the Norwegian underground during the occupation, proved unable to form a Cabinet satisfactory to all political factions. King Haakon then turned to the young mayor of Oslo, Einar Gerhardsen, left-wing leader of the powerful Labor Party, who shortly succeeded in forming a coalition government of all five political parties. Of fifteen Cabinet ministers, all but two had been active in the resistance movement within Norway. The two exceptions, Foreign Minister Trygve Lie and Defense Minister Oscar Torp, were retained from the preceding

"London government" to preserve continuity in two key posts. Two Communists were included in the new Cabinet, one of them being Mrs. Kirsten Hansteen, wife of the late Viggo Hansteen, who was the first Norwegian to be executed by the Gestapo; Mrs. Hansteen is the first woman ever to hold a Cabinet post in Norway. A general election was held on October 8. It gave the Labor Party a slight absolute majority in the Storting, with 76 seats out of 150. The Communists, who after a short-lived fusion with the Labor Party, made a separate bid at the polls, obtained 11 seats. The Conservatives won 25 seats, the Liberals 20, the Agrarians 10, and the Christian People's Party 8. On November 1, Mr. Gerhardsen reformed his Cabinet on an all-Labor basis.

On June 29, the Norwegian Parliament, by a vote of 104 to 4, restored the death penalty, abolished since 1875. This move marked the start of a thorough purge of quislings, some 17,000 of whom were in custody by that time. The first death sentence was imposed on a convicted Gestapo sadist, Reidar Haaland, on July 16; it was carried out on August 17, after Haaland's appeal had been rejected by the Supreme Court. With this precedent in everybody's mind, the trial of Vidkun Quisling himself opened on August 20 at the crowded Masonic Hall in Oslo. Quisling pleaded "not guilty" to all of the charges filed against him, but the prosecution easily established that he had conspired with Germany to bring about the invasion of April 9, 1940, that he was guilty of high treason, and that he was responsible for the deaths of hundreds of Norwegian patriots. The spectacular trial, attended by 150 press representatives, ended on September 10 with a death sentence for Quisling, who immediately filed an appeal to the Supreme Court. It was rejected, and Quisling was executed on October 24.

NOVA SCOTIA. Canada's most easterly province; area 21,068 square miles, of which 20,073 square miles are land area, and 325 square miles are fresh water. Population (1941), 577,962. The principal cities with their 1941 populations are Halifax (70,488), Sydney (28,305), Glace Bay (25,147), Dartmouth (10,847), Truro (10,272), and New Glasgow (9,210). The first permanent settlement in Nova Scotia was made by the French early in the 17th century, and the province was called Acadia until it was finally ceded to the British by the Treaty of Utrecht in 1713.

Government.—The legislature of Nova Scotia consists of a lieutenant governor, appointed and paid by the Dominion government for a term of five years, and a House of Assembly of 30 members, chosen by popular vote for a term not exceeding five years. The province is represented in the Dominion Parliament by 10 Senators and 12 members of the House of Commons.

Education.—Education is free, compulsory and nondenominational. In addition to elementary and high schools, there are schools for the blind and the deaf, a provincial agricultural college and a normal college for the training of teachers, both at Truro, and a provincial technical college at Halifax.

Principal Events.—Nineteen forty-five and the end of the Second World War brought Nova Scotia, in common with the world at large, face to face with reconversion problems. The province's capital and largest city, Halifax (estimated pop. 1945, 100,000), which during the long years of war had been the port of sailing for the Canadian Army in Europe, assumed during the latter part of the year, a reverse role as a port for happy homecoming veterans. Scores of thousands had arrived back in Canada through Halifax by the year's end.

War plants, which included aircraft assembling and repair factories, gun and shell plants, steel mills, and shipyards, closed down or curtailed activities. At Halifax shipyards work continued on three destroyers for the Canadian Navy while a fourth was commissioned and put in service. Many industrial plants, particularly those making railroad equipment and supplies, received new orders which continued to keep them busy.

Nova Scotia coal miners, affiliated with United Mine Workers of America (CIO), pressed for and obtained a wage increase which the coal companies met by a 33-cent jump in the price of coal per ton. A federally appointed royal commission spent several months investigating problems of Nova Scotia's coal industry along with the coal trade in the rest of Canada, but late in the year its findings had not been made public.

New developments in the province's long depressed fishing industry were foreseen with the amalgamation of several of the larger fish companies in a heavily capitalized organization titled National Sea Products, Limited. During the war years fish prices had been good and there had been a market for all the fish that could be caught.

For fruit growers of the Annapolis Valley, however, the picture was not so bright. Frosts early in the season cut the crop to the smallest harvest in recent years.

In the political sphere one of the most notable events was the return to the provincial premiership of Hon. Angus L. Macdonald, who headed the Liberal government from 1933 to 1940, when he joined the Mackenzie King cabinet at Ottawa as navy minister. He came back to his native Nova Scotia in 1945 to succeed Premier A. Stirling MacMillan, 74, who retired after more than 40 years in public life. In October, Premier Macdonald's government was re-elected with an increased number of supporters in the Assembly in a provincial general election.

Important development in the field of education was the provincial government's decision to give large-scale financial assistance in the establishment of a system of rural high schools and vocational schools in Nova Scotia.

In mid-July fire set off a series of explosions in a naval arsenal just outside Halifax which rocked the area for a night and a day. Many buildings were damaged and almost the entire northern half of the city and suburbs was evacuated. Fortunately the death toll was small.

GEORGE E. HERMAN,
Acting Director, Bureau of Information and Publicity, Halifax, Nova Scotia.

NUCLEAR PHYSICS. See under PHYSICS.

NURSING, Wartime, 1941–45. The story of wartime nursing is one of essential service rendered by close to 300,000 registered professional nurses on both the military and the civilian fronts. Between Pearl Harbor and V-J Day, over 76,000 nurses had served with the United States' armed forces in this country and in major theaters of operation. Their competent care of the sick and injured at home and abroad, in zones of combat and on trains, planes or ships, contributed in no small measure to the all-time low death rate of 3 per 100 which was achieved for American

wounded in the Second World War. Typical of the valor and courage of army and navy nurses is a brief account of "That Good Soldier—the Army Nurse" in a pamphlet published by the Information and Education Division, European Theater of Operations, United States Army (ETOUSA), entitled *That Men Might Live.* An excerpt follows:

"One recipient of speedy evacuation opened his eyes for the first time after being hit, to look into the smiling face of Capt. Beth Veley, San Jose, Calif., Chief Nurse, 103rd Evacuation Hospital. 'You shouldn't be up this far', the wounded lieutenant said. He didn't know he was talking to a veteran of two sieges. Captain Veley was one of the last nurses off Bataan and a month later was aboard the last plane out of Corregidor.

"Nurses were injured and killed as they attended fighting men. One morning Lieut. Frances Slanger, Boston, wrote the *Stars and Stripes* her impressions of the American soldier. She penned 'The Wounded Do Not Cry. Their buddies come first. The patience and courage they have is something always to behold."

"A German shell burst in the area and fragments struck Lieut. Slanger. 'I am dying' she said quietly as she was taken to the operating tent. She died one half hour later as calmly and as bravely as the men she had nursed and written about.

"Lieut. Slanger was the first American nurse to die from enemy action in the ETO. She and her companions had waded ashore in Normandy on D-Day plus 4. Without stopping to change their clothes, the nurses went on duty in a field hospital."

Of the more than 76,000 army and navy nurses who served in the war, close to 1,000 received decorations and citations for distinguished service, courage and devotion beyond the call of duty.

On the home front, nurses gave equally effective though less spectacular service. The departure for military service of thousands of young nurses, coupled with increased birth rates among civilians, threats of epidemics, and rises in incidence of such diseases as tuberculosis, diphtheria and infantile paralysis, necessitated careful planning and adjustments to make the available supply of nurses go around.

The federal government gave generous support to the nursing profession in its effort to meet the growing need for nurses. Congress appropriated over $175,000,000 during the war period for nursing education to increase the number of students enrolled in schools of nursing and to enable more graduate nurses to prepare themselves for responsible positions in hospitals, schools of nursing, and in the field of public health. The War Manpower Commission, after declaring nursing an essential war service, established a nursing section in its Procurement and Assignment Service to aid in the equitable distribution of nurses among military and civilian services. The Office of War Information permitted its radio and press facilities to be used to recruit nurses for military service, and to bring home to the public the urgent need for nurses.

The nursing profession geared itself for war service months before the Japanese sneak attack on Pearl Harbor. By organizing the Nursing Council on National Defense in July 1940, which became the National Nursing Council for War Service in 1942, it established a mechanism for co-ordinating the activities of professional nursing organizations so that the nation's need for nursing service might be most usefully and effectively met.

Close co-operation between government agencies and professional nursing organizations in making known the country's urgent need for nursing, resulted in a magnificent response from nurses, young and old. Over one third of the profession volunteered for military service. Thousands of nurses who had retired from active nursing because of age, health or home responsibilities, donned uniforms and helped to care for patients in hospitals and homes for several hours a day or several days each week. Thousands of nurses in full-time jobs devoted large portions of their spare time evenings, weekends, and holidays to such volunteer activities as classifying nurses as part of the procurement and assignment program of the War Manpower Commission; recruiting nurses for military service, and students for schools of nursing; teaching Red Cross classes in home nursing, and of volunteer nurse's aides; and organizing nursing units in the emergency medical services of the Office of Civilian Defense. As a result of all these efforts, military needs were met, essential civilian nursing services were maintained; enrolments of nursing schools increased from 87,588 in 1941 to 126,576 (110,068 of them members of the Cadet Nurse Corps) in 1945; close to one million housewives, high school girls and some fathers completed classes in home nursing sponsored by the American Red Cross; and over 180,000 volunteer nurse's aides were certified for service in hospitals and public health nursing agencies.

With hostilities ended, the nursing profession rapidly began converting to a peacetime program. Through the National Nursing Planning Committee of the N.N.C.W.S., an over-all plan to provide nursing service at a high level of competence for all people is rapidly taking shape. A National Professional Counseling and Placement Service is being developed by the American Nurses' Association to provide educational and vocational counseling for nurses seeking guidance or positions. Advanced clinical courses are being established in colleges and universities to prepare qualified graduate nurses as specialists in such clinical services as psychiatric, pediatric tuberculosis, orthopedic and obstetric nursing. Provision of scholarship funds by government and private organizations is encouraging nurses to seek special preparation for responsible positions in hospitals, health agencies and nursing schools.

Wartime advances in industrial medicine and nursing have given labor a new appreciation of health. The superb medical care provided for the armed forces and the government maternity and infant welfare program for their families have set a new standard of medical care which veterans will not forget. These groups will demand, and rightly so, that facilities for good medical care shall be more equitably distributed throughout the nation. Nursing service will continue to be an essential factor in the American way of life.

ERNESTINE WIEDENBACH,
Secretary, Nursing Information Bureau, American Nurses' Association.

NUTRITION. During 1945, investigation of nutritional problems, both basic and applied, continued on a large scale with many of the problems directly related to the war. Only a brief account of a few of the advances can be presented in this review.

Human Requirements.—The recommended dietary allowances of the Food and Nutrition Board

of the National Research Council (see 1943 AMERICANA ANNUAL under *Nutrition*) have been revised. Some of the recommendations have been decreased. The revised table is as follows:

RECOMMENDED DIETARY ALLOWANCES

Revised, 1945, Food and Nutrition Board, National Research Council, Washington, D. C.

	Calories	Protein grams	Calcium grams	Iron mg.	Vitamin A I. U.	Thiamine mg.	Riboflavin mg.	Niacin (Nicotinic acid) mg.	Ascorbic acid mg.	Vitamin D I. U.
Man (156 lb., 70 kg.)										
Sedentary	2,500	70	0.8	12	5,000	1.2	1.6	12	75	.....
Moderately active	3,000	70	0.8	12	5,000	1.5	2.0	15	75	.....
Very active	4,500	70	0.8	12	5,000	2.0	2.6	20	75	.....
Woman (125 lb., 56 kg.)										
Sedentary	2,100	60	0.8	12	5,000	1.1	1.5	11	70	.....
Moderately active	2,500	60	0.8	12	5,000	1.2	1.6	12	70	.....
Very active	3,000	60	0.8	12	5,000	1.5	2.0	15	70	.....
Pregnancy (latter half)	2,500	85	1.5	15	6,000	1.8	2.5	18	100	400 to 800
Lactation	3,000	100	2.0	15	8,000	2.0	3.0	20	150	400 to 800
Children up to 12 yrs.:										
Under 1 yr.	100/2.2 lb.(1 kg.)	3.5/2.2 lb. (1 kg.)	1.0	6	1,500	0.4	0.6	4	30	400 to 800
1–3 yrs. (29 lb., 13 kg.)	1,200	40	1.0	7	2,000	0.6	0.9	6	35	400
4–6 yrs. (42 lb., 19 kg.)	1,600	50	1.0	8	2,500	0.8	1.2	8	50	400
7–9 yrs. (55 lb., 25 kg.)	2,000	60	1.0	10	3,500	1.0	1.5	10	60	400
10–12 yrs. (75 lb., 34 kg.)	2,500	70	1.2	12	4,500	1.2	1.8	12	75	400
Children over 12 yrs.:										
Girls, 13–15 yrs. (108 lb., 49 kg.)	2,600	80	1.3	15	5,000	1.3	2.0	13	80	400
16–20 yrs. (119 lb., 54 kg.)	2,400	75	1.0	15	5,000	1.2	1.8	12	80	400
Boys, 13–15 yrs. (103 lb., 47 kg.)	3,200	85	1.4	15	5,000	1.5	2.0	15	90	400
16–20 yrs. (141 lb., 64 kg.)	3,800	100	1.4	15	6,000	1.8	2.5	18	100	400

The most significant changes are a reduction of the recommended allowances for the B-complex vitamins, riboflavin, niacin, and thiamine, particularly at higher caloric intakes. It should be stressed again (see 1945 AMERICANA ANNUAL under *Nutrition*) that the figures in the above table are *recommended dietary allowances* and *not* nutritional requirements. With all of the levels there are ample margins of safety to account for the multitude of environmental factors which affect actual requirement of specific nutrients. As well as can be evaluated, human health is perfectly normal at levels of nutrients somewhat less than these recommendations, but they still serve as a guide for good nutrition and the levels are easily obtained from an intelligent selection of foods.

The shortage of meat and other animal proteins has continued to focus interest on the nutritional qualities of various vegetable proteins and on the amino acid requirements of man. In evaluating proteins, one must consider two general aspects: (1) digestibility, and (2) biological value. By digestibility is meant the per cent of the consumed protein, measured in terms of nitrogen, that is absorbed. Biological value means the per cent of absorbed nitrogen that is retained by the body and not excreted in the urine. The body requires a definite combination of amino acids each in proper amount for the formation of tissue proteins. If any essential amino acid is supplied in inadequate amounts, then this amino acid will determine the amount of tissue protein made; other amino acids, regardless of the amount present, can be used only to the extent that is required for this tissue protein and the rest present will be metabolized and the nitrogen excreted in the urine. Thus if proteins containing small amounts of any of the essential amino acids are fed, a large percentage of the nitrogen will be excreted in the urine; therefore, the proteins will have low biological values. Although there are exceptions, most vegetable proteins have lower digestibilities and biological values than animal proteins. For this reason, most nutritionists recommend that diets contain some animal protein. Recent evidence, however, suggests that even on all-vegetable diets the protein intake will be satisfactory for adults if sufficient food is provided to satisfy the caloric requirement. In a study with young men fed diets containing only 50 to 55 gms. of protein, of which 90 per cent or more was from vegetable sources, no changes in physical fitness or efficiency were found during a two-month experimental period. The protein intake in these diets was as low as possible without resorting to the use of large amounts of nitrogen-free constituents to maintain adequate caloric intakes. These data, as well as observations on the nutritional status of the civilian population in various European countries short of food as a result of the war, suggest that protein deficiency in adults is most unlikely on diets of natural foods which are adequate in calories. This may not be true in children for it is known that protein metabolism in growth is very inefficient and requirements are three to four times higher than in maintenance of nitrogen equilibrium in the adult.

Food Composition.—The war has stimulated interest in food composition and the effect of processing and storage on the nutrient content. To correlate studies in different laboratories on analytical methods, analysis of foods, and losses of nutrients during processing and storage, the Food and Nutrition Board has had a Committee on Food Composition. The results thus far available have been presented in two mimeographed reports entitled *Tables of Food Composition Giving Proximate Mineral and Vitamin Components of Food* and *Vitamin Losses in Cooking Foods*. Reports have appeared on an extensive investigation into the nutritive value of canned foods. While

there are certain losses in some nutrients during canning procedures, particularly in ascorbic acid and thiamine, canned foods are of high nutritive value.

The merits of white bread made from enriched flour versus whole wheat bread continue to be discussed. The latter is a superior product from its composition of nutrients because it is somewhat richer in protein, B-complex vitamins, iron, and calcium. However, whole wheat flours also contain certain substances such as fiber and phytic acid which interfere with the absorption of some nutrients. From a practical viewpoint, this must be recognized as well as the fact that most people prefer white to dark bread and food habits are important in determining what we eat. The enrichment of white flour with thiamine, riboflavin, and niacin is a definite and positive step in the improvement of dietaries and of public health.

The effect of commercial processing on the nutritional value of proteins in foodstuffs has been of interest. Heat is the factor causing the most change, and much data on the effect of heat on food proteins have been collected. Too great a heat will decrease the value of any protein, but a moderate degree of heat may have no effect or increase it or decrease it. It is known that moderate heating increases the biological value of soybean proteins. Dry heat during processing impairs the growth-promoting value of wheat, rice, oat, and corn proteins. So-called "puffed cereals" prepared by preheating with steam under high pressure, followed by suddenly releasing the pressure, is especially destructive. This impairment is not one of lowered digestibility but rather to a lowered utilization of the protein possibly as the result of destruction of certain essential amino acids.

Nutrition Surveys.—Two nutrition surveys in Newfoundland, carried out by independent investigators, are of interest in that a careful attempt was made to evaluate the health of the individuals by means of physical examinations and laboratory studies and to correlate these findings with the dietary findings. In one survey, 868 unselected people in St. John's and several outlying towns were studied. The dietary and laboratory findings suggest that these individuals subsist at a definitely lower intake level than the population of Canada and the United States. A high incidence of minor physical changes was reported which are suggestive of deficiencies of vitamin A, riboflavin, and ascorbic acid. In the second survey, 113 individuals were examined in a small west coast fishing village. The subjects were largely selected to include those most susceptible to nutritional deficiency—namely, pregnant and lactating women and rapidly growing children. Multiple nutritional deficiencies were reported in over half of the subjects. Those most frequently encountered were of vitamin A, riboflavin, and iron.

A previous review (see 1945 AMERICANA ANNUAL under *Nutrition*) mentioned a nutritional survey in a California aircraft factory which reported that 40 to 50 per cent of the workers had symptoms and complaints suggestive of poor nutrition though it was not proved that dietary deficiency was the primary cause. A further report on this same study has been made which gives analyses of absenteeism, turnover, and personnel ratings on three groups of workers as follows: a group receiving vitamin supplements, a group receiving a placebo supplement (pills containing no vitamins), and a control group receiving no supplement. Only slight differences were observed among the three groups. The results reported could not be accepted as a basis for advising general vitamin supplementation for the industrial worker.

Nutritional Rehabilitation.—There has been and will continue to be much interest in the nutritional condition of the people, particularly the children, of war-torn countries, and with the treatment of starvation. Studies have been made on the nutritional condition of children in France, and it was concluded that probably half of the children of school age had suffered a retardation of growth. Signs of general malnutrition, chronic fatigue, and lack of physical fitness were reported. The decrease in growth rate was attributed to three main factors—lack of calories, of protein, or of vitamin D. Nevertheless, none of the specific nutritional deficiency diseases, other than rickets, appears to have developed with greater frequency than under prewar conditions.

Studies on nutritional conditions in Holland in the first few days following the end of the war revealed a severe state of general malnutrition among the civilian population of the large cities. Marked weight loss, edema, anemia, and deficiencies of vitamin A were common. Caloric intakes were grossly deficient, being reported at less than half of what is desirable.

Food conditions in Europe improved greatly shortly after the war with the coming of spring and summer crops and the release to civilians of certain army food supplies. However, it is most likely that much hunger and starvation will appear in war-torn countries during the next one or two winters. This will not be due so much to a real shortage of food as it will be to inadequate transportation and distribution of food from the country to the cities.

Nutrition and Protection Against Toxic Chemicals.—There has been increasing interest in the effect of diet on the toxicity of drugs and a mounting realization that proteins constitute an effective protective agent against a wide variety of toxic compounds. Diets rich in protein have been shown to exert a beneficial influence when given to experimental animals exposed to chloroform, carbon tetrachloride, benzene, arsphenamine, mapharsen, or atabrine. In certain concentrations these drugs damage the liver. It was formerly thought that protection of the liver was best afforded by a high carbohydrate diet; however, the striking protective action of dietary protein has focused attention on the latter. It appears that the sulphur-containing amino acids, methionine and cystine, are the principal components of protein that are effective in this protective action, though the actual detoxifying mechanism is not known.

Nutrition Reviews.—Attention is directed to the monthly journal, *Nutrition Reviews*, published by the Nutrition Foundation, Inc., Chrysler Building, New York City. *Nutrition Reviews* presents an authoritative, unbiased review of the world's current research literature in the science of nutrition, particularly as it relates to health. It is also translated into Spanish and is published under the name of *Nutricion* by La Prensa Medica Mexicana, Queretara 97, Mexico, D.F.

FREDRICK J. STARE,
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NYASALAND PROTECTORATE. A British territory in southeast Africa, along the western and southern shores of Lake Nyasa and extending

southward almost to the Zambezi River. The land area is 37,374 square miles, and the population at the end of 1940 numbered 1,686,045 (1,682,456 natives, 1,738 whites, and 1,851 Indians). The capital is Zomba, in the Shiré Highlands, where also are Blantyre and Limbe, centers of white settlement; ports on Lake Nyasa include Karonga, Bandawe, Kota Kota, and Fort Johnston. A governor (Sir Edmund Richards appointed June 5, 1942), assisted by nominated executive and legislative councils, administers the three provinces into which the country is divided (the Central Province was constituted in 1945 from parts of the Northern and Southern provinces); provincial councils of chiefs and other responsible Africans are associated with local administration. The 1945 budget estimated revenue of £778,851 and grants from the British Treasury of £267,378, a total of £1,046,229; expediture was placed at £1,030,769, showing an estimated surplus of £15,460. State aid is provided for elementary schools for natives conducted by 11 missionary bodies (4,070 schools with 183,242 pupils in 1943); the government also finances 2 secondary schools for Africans and aids 4 schools for white children. A five-year program for extension of educational facilities was initiated in 1945 with a grant from the British treasury of £345,000.

Land holdings of white settlers constitute 5.5 per cent of all land in the protectorate. Both white farmers and natives cultivate tobacco (13,000,000 pounds exported in 1944), and the former also grow tea (19,100 acres in 1942 and exports of 12,382,404 pounds) and small crops of coffee (once the chief article of export), tung, and pyrethrum, the last being first cultivated during the war. The 1945 tobacco crop was estimated at 11,500,000 pounds, of which 2,250,000 pounds represented native production. Natives also grow cotton (3,737,116 pounds exported in 1942), rice, corn (maize), and peanuts. A joint development adviser for the protectorate and Northern Rhodesia was appointed in 1945. The principal imports are cotton textiles, vehicles, machinery, and petroleum products. Total imports in 1943 were valued at £1,276,322, and exports at £1,379,401. A railroad line connecting the protectorate with the sea extends southward from Salima to Blantyre (160 miles), Port Herald (259 miles), and Sena (324 miles), crosses the Zambezi River by the longest railroad bridge in the world (2.285 miles), and continues on to Beira in Mozambique (524 miles). A steamship service on Lake Nyasa is operated by the protectorate's railroad administration. There is a good highway system of 3,733 miles; it connects with the Great North Road, which extends from South Africa to the headwaters of the Nile. A road completed in 1945 from a point six miles south of Dedza, on the main Lilonge highway, to the railroad near Golomoti reduces by 50 miles the haul for export products from the Angoni Highlands. Scheduled air transport services link the protectorate with North and South Africa.

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OATS. The 1945 oat crop of the United States was estimated by the Department of Agriculture on October 1 at 1,583,650,000 bushels, as compared with the 1944 crop of 1,166,392,000 bushels and the 1934–43 average crop of 1,068,399,000 bushels. Minnesota was the leading producing state in 1945 with a crop totaling 243,938,000 bushels. Iowa was second with 222,794,000 bushels, and Illinois was third with 165,216,000 bushels.

OCEAN ISLAND. See WESTERN PACIFIC ISLANDS, BRITISH, Section 2.

OCEANIA. Geographically, the land division of the world which is composed of islands in the Pacific Ocean; in the more restricted general usage, the term comprehends Melanesia and the greater part of Polynesia. Politically, French Oceania comprises possessions of France. The Western Pacific Islands and the Fiji Islands are under British administration, and the New Hebrides is a Franco-British condominium; New Guinea is divided between the Netherlands and Australia, and Samoa between the United States and New Zealand; Tokelau (or Union) Islands, the Cook Islands, and the Niue are dependencies of New Zealand; and Nauru is a mandate of the British Empire. See separate articles on the various territories.

O'DWYER, William, mayor of New York City: b. Bohola, County Mayo, Ireland, July 11, 1890. Mr. O'Dwyer was elected mayor of New York City Nov. 6, 1945, by a record plurality of 685,175 votes. He was swept into office by a coalition of the Democratic and Left wing American Labor parties. He began his four-year term on Jan. 1, 1946. Mr. O'Dwyer was graduated from St. Mathy's secondary school and studied two years at the University of Salamanca, Spain, before coming to the United States in 1910, a near-penniless immigrant. He became an American citizen in 1916. One biographer has called his first seven years in America, 1910–17, his "odd-job years." His second seven, he worked as a New York City policeman, and studied law at Fordham University. Admitted to the bar in 1923, he entered general practice. He was a city magistrate from 1932 to 1938 and by appointment was a judge of the Kings County Court from 1938 to 1939. Elected District Attorney of Kings County, N.Y., in the fall of 1939, he took office Jan. 1, 1940, and in the 23 months he held that post, came into national prominence as the prosecutor who smashed Brooklyn's Murder Inc., and in the process, solved some 87 murders. He won the Democratic mayoralty nomination in 1941, but lost to Mayor Fiorello LaGuardia by 134,000 votes. After Pearl Harbor, he took leave of absence and volunteered for army service. He was commissioned major in June 1942, and by August 1944, had risen to the rank of brigadier general. Most of his army work had to do with the investigation of war-contract frauds. He also served as the late President Roosevelt's personal representative on the Allied Control Commission in Italy, and was executive director of the War Refugee Board. After V-E Day, he returned to Brooklyn as a civilian, and received the Democratic and American Labor

mayoralty nominations in August 1945. He resigned as District Attorney—he had been reelected in absentia in 1943—to carry on his political campaign.

OFFICE OF CIVILIAN DEFENSE (OCD). Established May 20, 1941, by President Roosevelt because of the rising menace of aerial attack upon the United States, the Office of Civilian Defense was the first of the war agencies to be abolished in the reconversion to a peacetime society. Its abolition became effective June 30, 1945, after more than four years of existence during which approximately twelve million civilians were organized and trained for protection against air raids and for the performance of other volunteer war services. Although the air raids did not occur, the civilian defense volunteers operated not only as insurance against such eventuality, but also they performed invaluable service in natural disasters, wrecks, and other war-related emergencies and disasters.

The States War Inspection Service (SWIS) continued during the first six months of 1945 to provide assistance to war plants and essential industrial facilities in matters of safety precautions against fire and other forms of sabotage and accidents.

On June 5, 1945, Executive Order 9562, formally abolishing the Office of Civilian Defense as of June 30, was issued. All of its functions also were abolished, with the exception that the protective property acquired by the Office of Civilian Defense was transferred to the Department of Commerce. The jurisdiction of the director of Civilian Defense with respect to such property was transferred to the Secretary of Commerce to be exercised subject to the Surplus Property Act of 1944 and the regulations of the Surplus Property Board. Liquidation of the general administrative activities was transferred to the Bureau of Accounts, Treasury Department. With the close of business, June 30, 1945, the United States Office of Civilian Defense ceased to exist.

ELWYN A. MAUCK,
Chief, Reports and Awards Office, OCD.

OFFICE OF DEFENSE TRANSPORTATION (ODT). Created by executive order at the beginning of the war and charged by the president with coordinating the nation's transportation plant to the winning of the conflict, the Office of Defense Transportation, due to the surrender of Germany and Japan, was, late in 1945, able to lift virtually all its controls over transportation. Under director Col. J. Monroe Johnson, the ODT in 1944 and 1945 continued to enforce existing transportation regulations; imposed new restrictions on the use of railroads, highways, waterways and pipelines; acted as claimant agency in obtaining, from the War Production Board, materials used in the manufacture of transportation equipment; and utilized the aid of already-established civilian advisory committees until the end of hostilities made their dissolution possible. With the collapse of Germany in May, the emphasis of the war shifted from the Atlantic to the Pacific theater. Much of the war freight movement had to be reversed to move overland to West Coast ports. Meanwhile the redeployment of troops and supplies from the Atlantic to the Pacific, by way of the American continent, placed an added burden on the already overloaded rail lines.

Railroads.—The ODT railroad program for the first half of 1945 was a continuance of existing controls over freight traffic and the placing of additional and more drastic restrictions on passenger traffic After V-J Day many of these controls were dropped or relaxed, pointing to the practical disappearance of the agency's activities by the end of the year. Maximum loading requirements for merchandise and bulk freight, and for perishables carried in refrigerator cars, were still in effect in October. To insure an adequate supply of box cars and refrigerator cars, as successive emergencies arose, temporary and local embargoes were placed on the railroads by the Interstate Commerce Commission on ODT recommendation and penalty demurrage charges, from time to time, were imposed.

The blizzard in the Northeast early in 1945 called for emergency measures to relieve congestion in that region; later, special efforts were made to supply the grain belt with the box cars needed to handle the 1945 bumper crop. The control exercised over the routing of railroad freight west of the Mississippi, under W. F. Kirk, western railway transport director, was maintained with successful results until November 1, when it was terminated.

The export permit system, controlling shipments of freight consigned to overseas destinations, continued to prevent congestion on rail lines leading to the ports until it was abolished in October.

To conserve passenger equipment at a time of prodigious troop movements by rail, ODT carried on until after V-J Day a vigorous campaign to cut down civilian passenger travel. By radio, posters, press publicity and through the co-operation of local committees, the "Spend your Vacation at Home" idea was brought to the people.

In October, the Toledo, Peoria and Western Railroad, which had been operated by the ODT since early in 1942, was restored to private operation. The Illinois Central Railroad was taken over by the ODT in August 1945 following an unsettled labor dispute. W. F. Kirk was appointed federal manager but the railroad continued operation without change of personnel.

Serious railroad manpower shortages on the west coast occupied the attention of ODT officials throughout the year and became more acute toward the end of 1945, due to heavy troop arrivals from the Pacific theater. The ODT joined with the army and other war agencies to promote a railway manpower recruiting campaign. Special deferments for railroad workers were obtained from Selective Service and the army released a number of experienced railroad workers to help meet the emergency.

Waterways.—The first half of 1945 saw a sustained volume of bulk commodities—petroleum and its products, iron ore, limestone, coal, grain and sulphur—moving on the nation's waterways under ODT supervision, as well as the building, under ODT sponsorship, of an additional fleet of steel tank barges necessary to care for mounting demands. The end of the war with Germany, in May, caused a slight reduction in the first half year's movement of iron ore on the Great Lakes. Shortage of railway equipment and other factors, however, increased the late grain volume by nearly nine million bushels over that of 1944. On the Mississippi-Ohio system, on the Gulf and Atlantic Intracoastal Canals and other inland channels, the volume of petroleum and its products totaled more than a million barrels a day. By cooperative agreement, a large segment of this 1945 movement was made jointly with railroads and pipelines. During the entire war period, inland waterways handled a grand total of 1,731,034,485 barrels of petroleum and its products; 345,835,040

tons of iron ore; 62,827,283 tons of limestone, as well as enormous quantities of coal, grain, sulphur and other bulk commodities. Termination of hostilities in the Pacific enabled ODT to remove completely its controls over the chartering, sale, leasing, loading, routing and operation of inland craft. On November 29, however, the ODT took over the Great Lakes Towing Company—serving virtually all lake ports—whose crafts had been rendered idle by a strike.

Liquid Transport.—Continuing its supervision over the movement of liquid products, the ODT during the first five months of 1945 expedited rail shipments by imposing extra demurrage charges on idle tank cars, by requiring daily telegraphic reports as to the loading and status of every car and by requiring loading and unloading crews to work around the clock. Largely as a result of these actions, a greater volume of petroleum and its products, vital to the armed forces and to civilian needs, was moved to the Atlantic Seaboard during the first quarter of 1945 than during any comparable period in history—166,323,838 barrels. During the second quarter of 1945 the volume decreased slightly due to the ending of the war with Germany. All ODT controls over the shipment of all liquids were lifted Sept. 20, 1945.

Highway Transport.—In the field of highway transport, ODT, during the latter half of 1945, lifted numerous restrictions which had been imposed to aid the flow of war matériel and manpower to the front. Among these were measures restricting the operations of solid fuel carriers and local bus, trolley, and school bus operation. Up to October 15, the ODT had returned to private operation 78 of the 103 midwest trucking concerns it had seized in August 1944 to prevent disruption of service during labor disputes. On August 16, 1945, it also terminated its control over more than 1,600 property transportation lines in Chicago and vicinity, taken over for the same reason, on May 23, 1945.

On November 21, the ODT assumed control of the property of the Capital Transit Company, operating street cars and buses in Washington, D.C., and suburban territory. The action was taken at the direction of President Truman, following two strikes within a period of two weeks. The activities of the Highway Transport Department were terminated as of December 1.

Controlled Materials Plan.—The War Production Board's Controlled Materials Plan terminated September 30. Under this plan ODT, as claimant agency, reported the production of certain major items during the operation of the plan in the three-and-a-half years ended June 30, 1945, as follows: 1,082 steam, 1,741 Diesel electric, 38 electric locomotives; 155,002 freight cars, 1,200 troop sleepers and 400 kitchen cars; 181,146 trucks and tractors; 19,580 integral buses; 5,572,392 tons of replacement rail. Production of these items was carried under free market conditions after September 30. One thousand two hundred more troop sleepers and 400 kitchen cars built under ODT sponsorship were scheduled for completion by the end of 1945 and production of passenger train cars—the first authorized since 1942—was scheduled to begin late in 1945 with 750 due to be built by July 1, 1946.

Reductions and Discontinuances.—Gradual reduction of the ODT staff and field offices (begun late in 1944), continued in 1945 and was greatly accelerated after V-E and V-J Days. The remaining 103 district offices and 39 field offices of the Highway Transport Department were liquidated in successive stages by November 1. The eight remaining regional offices closed December 1. Fourteen Railway Department field offices were closed by November. Staff offices in Washington were reduced to skeleton strength necessary to close out operation of the various divisions by the end of the year.

By November, more than 23,000 special ODT advisory committees in different fields of transportation, were dissolved. These committees, whose members numbered 102,917, serving without compensation, co-operated with the ODT in gathering information, formulating policies and executing various industry and joint-action plans designed to get the fullest utilization of all transportation equipment in the interest of the war effort.

GARNETT L. ESKEW,
Information Manager, ODT.

OFFICE OF ECONOMIC STABILIZATION. This office was established within the Office for Emergency Management on Oct. 3, 1942, by Executive Order 9250, to control as far as possible inflationary tendencies which would impede prosecution of the war and the operation of the domestic economy. The same order established the Economic Stabilization Board to advise the director of the office.

The director was authorized to formulate and develop a comprehensive national economic policy for the control of civilian purchasing power, prices, rents, wages, salaries, profits, rationing, subsidies, and related matters.

Under Executive Order 9620, Sept. 20, 1945, the Office of Economic Stabilization was abolished and all functions and authority were transferred to the Office of War Mobilization and Reconversion. Within the Office of War Mobilization and Reconversion was established the Office of Stabilization Administrator. The functions and authority of the director of Economic Stabilization, transferred under Executive Order 9620 to the director of the Office of War Mobilization and Reconversion, were delegated to the Stabilization Administrator. PAUL DUNCAN,
Director of Information, Office of Economic Stabilization.

OFFICE OF INTER-AMERICAN AFFAIRS. This office was originally established in August 1940 as the "Office for the Co-ordination of Commercial and Cultural Relations Between the American Republics." The name was changed the next year to the "Office of the Co-ordinator of Inter-American Affairs." Nelson A. Rockefeller served as co-ordinator until his appointment as assistant secretary of state in December 1944. In March 1945 the office was renamed the "Office of Inter-American Affairs," with Wallace K. Harrison of New York City in charge as director. Shortly after the end of the war in the Pacific, the informational programs of the office were placed under the Interim International Information Service established in the Department of State by executive order.

The function of the Office of Inter-American Affairs for five years has been to assist and support the foreign policy of the United States with co-operative programs reaching the people of the other American republics. Such inter-American programs were designed to speed victory over the Axis powers and to help the people of the Western Hemisphere solve to mutual advantage the economic and social problems affecting their security.

At the Inter-American Conference on Problems of War and Peace held in Mexico City in

March 1945, the nations of the Western Hemisphere culminated their common wartime determination to protect their freedom by adopting far-reaching measures to continue participation in the United Nations war effort and to ease the transition from a war to peacetime economy.

The 1945 operations of the Office of Inter-American Affairs can be grouped, in general, into two broad categories—economic development, with attendant health, sanitation and food programs, and informational activities.

The comprehensive basic economy program has had three major objectives: safeguarding the health of the United States and Allied military forces stationed in the other republics; maintaining conditions of health and food supply for workers engaged in production of strategic materials; and laying the basis for continued elevation of health and nutrition standards in the American republics. Health and sanitation and food supply projects now in operation in the other Americas are entirely on a co-operative basis. Health projects include control of malaria and other tropical diseases, drinking water and sewage disposal projects and programs for training medical and nursing personnel.

The food supply program for 1945 concentrated on expansion of food production to solve wartime shortages, as well as improvement in storage facilities and agricultural techniques which will have long-range effects on the internal economies of the other Americas.

During 1945 the Office of Inter-American Affairs placed increased emphasis on its transportation program, particularly in regard to maintenance of strategically located railways in the other Americas. In this phase of activity, the office co-operates with the other republics by furnishing the services of technicians to advise them on maintenance and operational methods.

The educational program of the office was organized in 1943 to develop a comprehensive co-operative educational program with the other American republics. During the last year, the program has expanded through the signing of several new reciprocal agreements with various hemisphere republics, calling for joint contributions of funds, materials and educational personnel. Educational work in the United States has included a continuation of consultant services to teachers and schools, planning of inter-American institutes, lecture series and workshops and the distribution of teaching aids.

Other United States activities of the office are directed toward the increased participation of local and regional groups in inter-American programs. This participation is encouraged, in part, through assistance in program planning to 20 inter-American centers established in regional areas in the United States.

As a basis for promoting hemisphere measures that would most materially aid the war against the Axis, it early became the duty of the office to present facts and information as clearly and accurately as possible to all hemisphere relations. For this work, all means of communication—such as the press, radio and motion pictures—are used. Programs in these areas, carried out by the Office of Inter-American Affairs up until the time of its reorganization in August of 1945, are being continued by the Interim International Information Service of the Department of State.

Even prior to Pearl Harbor the office had established facilities to combat Axis propaganda in one of the enemy's favorite fields—short wave radio. On the day the United States entered the war, this service was put on a 24-hour, 7-day week basis.

Under another phase of press activities, over 100 newspaper publishers, editors and journalists from other countries of the hemisphere have made extensive tours of the United States at the invitation of the National Press Club in co-operation with the Office of Inter-American Affairs.

Motion pictures have played an important part in the informational program of the office. There are two types of motion picture operations: theatrical and nontheatrical. In the first, the office has co-operated with the motion picture industry to extend the production of feature pictures, short subjects and newsreels designed to further the joint war effort and mutual understanding. In the second, the office has originated a hemisphere-wide program of nontheatrical film showings. Informative and educational short subjects dealing with the war effort and ways of life in the Americas are produced, or obtained from various sources for distribution through schools, clubs, churches and other nontheatrical channels.

WALLACE K. HARRISON,
Director, Office of Inter-American Affairs.

OFFICE OF PRICE ADMINISTRATION (OPA). During 1945 the Office of Price Administration continued to control prices and rents under authority of the Emergency Price Control Act of 1942 and the Stabilization Act of 1942 and to ration consumer goods under the authority of the Second War Powers Act as delegated by the president.

The abrupt conclusion of the war brought the agency even graver responsibilities. During the 72 months after the war began in September 1939, the cost of living in the United States had risen only 31 per cent above its August 1939 level, nine tenths of this rise having come before the president's "hold-the-line" order of May 1943. This record was in sharp contrast to a comparable 72-month period in the First World War when the cost of living rose 108 per cent. Yet almost half of the First World War inflation came after the 1918 armistice was signed.

Recognizing the danger of a similar occurrence, on Aug. 18, 1945, President Truman issued an executive order clearly setting forth the stabilization program for the transition from war to peace. The order stated that the cost of living and the general level of prices should be held at the then existing levels, and the pricing of reconversion products must be on a basis of full volume rather than on a volume that will be limited during the change-over from war goods to peacetime production.

In the months preceding V-J Day, OPA was faced with a severely diminished supply of meat available for rationing, and by a rise of clothing prices. Both these problems seriously threatened the entire stabilization program. With the end of the war, reconversion pricing and the problems of decontrol, which began late in 1944, moved to the center of OPA operations.

To solve the critical meat situation, the office early in the year, at the direction of the Office of Economic Stabilization (later merged in the Office of War Mobilization and Reconversion), placed an over-riding ceiling on live cattle to meet packer protests that processing margins, despite subsidy payments, were being reduced below cost by rising cattle prices. During June, in co-operation with other government agencies, the office launched a 10-point program designed to encourage increased feeding of beef cattle, to

raise margins for meat processors, and to improve the distribution of beef and pork.

In the apparel field, OPA's most outstanding action was issuance of the maximum average price orders covering garment manufacturers and rayon and woolen mills. The core of each order was the requirement that any producer covered must maintain an average price for his deliveries during each quarter at or below his average price for the same products in the base period, usually 1943. Individual prices above or below the average were permitted. In the case of most lower-priced garments, the order was later amended to provide certain temporary exemption levels for manufacturers dependent on the depleted supply of cheap fabrics. For low-priced cotton apparel, manufacturers of which had received priority assistance from the War Production Board, OPA established dollar-and-cents prices and required manufacturers to affix the price to each garment.

OPA's reconversion pricing program covered both industries as a whole and individual concerns resuming production of commodities which had been entirely or largely off the market because of wartime restrictions, as well as certain firms whose production was greatly curtailed in 1944. The industry-wide formula for establishing prices adjusted total costs for the product during the last period of normal production, usually the year 1941, for the following factors: (1) legal increases since October 1941 in the basic wage schedules of factory employees in that industry; and (2) the general legal increases since October 1941 in prices of materials and components entering into the industry's average factory costs for the product. To the 1941 costs so adjusted was to be added a profit margin equivalent to the industry's 1936–39 percentage profit margin before income taxes. The resulting figure thus obtained would yield an increase factor to be applied to the October 1941 price. Unless the price calculated by use of this factor was less than the existing authorized price, it would become the ceiling price. A broad adjustment policy of individual firms was also provided.

Soon after V-J Day, OPA further facilitated the reconversion process by permitting increases under its price adjustment procedure to manufacturers operating at a loss who did not fall within the reconversion pricing policy because their goods had not been out of production and who, because their products were not essential either to the military program or to the civilian economy, had not been able to qualify for increases under wartime standards.

Under post-V-J Day policy for price decontrol, formulated at the direction of the Office of Economic Stabilization, control was to be suspended when supply came into reasonable balance with demand, and the threat to price stabilization was removed. Suspension was to be succeeded by outright exemption as soon as experience confirmed the accuracy of an initial judgment in this respect. Another basis for releasing commodities from price control involved three tests: (1) they were not significant in living or business costs; (2) their control imposed an administrative burden on the office disproportionate to the benefits to be gained by continued control; (3) their decontrol would not lead to diversion of the productive facilities or to impaired price control for other commodities.

Decontrol policy with regard to rationing called for lifting of control from any commodity as soon as civilian supply increased, due to cancellation of government set-aside orders or contracts or to improved production, to an extent which brought it into reasonable balance with demand. Thus rationing of gas stoves and used and new 1942 automobiles was dropped soon after V-E Day. Immediately after V-J Day it was dropped from gasoline, fuel oil, oil stoves and processed foods. Control was later dropped from solid fuels (in the Pacific Northwest), men's rubber boots and rubber work shoes, meats, salad and cooking oils, and diary products, shoes and, finally, tires. Sugar rationing was the only rationing program carried into 1946. Controls over livestock slaughter and meat distribution were also lifted.

OPA decontrol policy with regard to residential rentals was to lift control area by area, as the threat of inflation disappeared through the decline or end of war activities in particular localities. During the early weeks following V-J Day this decline became significant in only relatively few defense-rental areas and the removal of areas from control was therefore very gradual. The continued decline in pressure was expected, however, to enable the office by the end of the fiscal year (June 30, 1946) to decontrol approximately one fifth of all defense-rental areas.

WILLIAM R. AUMAN,
Assistant Director, Editorial Division, OPA.

OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. Established by Executive Order No. 8807 dated June 28, 1941, this office is charged with the initiation and support of scientific research on the mechanisms and devices of warfare, and on medical problems affecting the national defense. It consists of the National Defense Research Committee which had been created June 27, 1940, by an order of the Council of National Defense, and the Committee on Medical Research which was established by Executive Order No. 8807, and an Office of Field Service which was established Oct. 15, 1943.

The office is administered by a director, Dr. Vannevar Bush, assisted by an advisory council, consisting of the director, representatives of the army, the navy, and the National Advisory Committee for Aeronautics, and the heads of the two primary operating agencies of the office, the National Defense Research Committee and the Committee on Medical Research. The advisory council assists the director on matters of broad policy.

The National Defense Research Committee advises and assists the director in the performance of his scientific research duties with special reference to the mobilization of scientific personnel and resources of the nation. This committee is composed of: chairman, Dr. J. B. Conant (Harvard University); vice chairman, Dr. Richard C. Tolman (California Institute of Technology); Dr. Frank B. Jewett, president, National Academy of Sciences; Casper W. Ooms, commissioner of patents; army representative, Brig. Gen. E. A. Regnier, USA; navy representative, Rear Adm. A. H. VanKeuren, USN; Dr. Roger Adams (University of Illinois); Dr. Karl T. Compton (Massachusetts Institute of Technology); executive secretary, Irvin Stewart.

The Committee on Medical Research assists the director in the performance of his medical research duties. It is composed of: chairman, Dr. A. N. Richards (University of Pennsylvania); vice chairman, Dr. Lewis H. Weed (chairman, Division of Medical Sciences, National Research Council; Johns Hopkins Medical School); army

representative, Brig. Gen. James S. Simmons; navy representative, Rear Adm. Harold W. Smith; Federal Security Agency representative, Dr. R. E. Dyer; Dr. A. R. Dochez (Columbia University); Dr. A. Baird Hastings (Harvard University); executive secretary, Irvin Stewart.

To deal with the great variety of problems submitted to the National Defense Research Committee and the Committee on Medical Research by the army and navy, a number of panels of experts have been set up to formulate research programs, select competent contractors and to follow the progress of work undertaken and to maintain liaison with the particular branches of the army and navy which are concerned with each project.

The Office of Field Service is headed by Dr. Alan T. Waterman. The increasing demands for personnel with special experience in the development of new weapons for service with the army and the navy, principally outside of the United States, prompted its creation. The Office of Field Service is charged with the responsibility of furnishing scientific and technical assistance to theater and higher echelon commanders of the army and the navy, particularly with a view to insuring the most effective use of weapons developed by the National Defense Research Committee.

The director is empowered to contract with and transfer funds to existing governmental agencies and institutions and to enter into contracts and agreements with individuals, educational and scientific institutions, industrial organizations, and other agencies for studies, experimental investigation, and reports. The general policy of the office is to use existing facilities rather than to create new ones. To this end, numerous contracts have been entered into with institutions of these several classes. These contracts are intended to cover actual out-of-pocket expenses, together with a reasonable allowance of overhead, in order that contractors shall neither gain nor lose by participating in the war research program. Most of the projects for research and development are undertaken by the OSRD at the direct request of the armed services and are of a very confidential nature, so that reports of progress and of results obtained are necessarily held to a closely limited distribution and cannot be made generally available. However, large procurement orders placed by the army and navy for various devices and equipment developed under OSRD contracts are indicative of the important results obtained.

The Office of Scientific Research and Development was charged with the initiation and support of scientific research on weapons and equipment for the army and navy. Some of the fields in which this equipment has been developed in cooperation with the army and navy are rockets, radar, atomic energy, flame throwers, amphibious vehicles, fire control mechanisms, smoke generators, optical equipment, etc. OSRD was not equipped, however, to handle the great task of evaluating the large number of inventions and proposals submitted by the general public. This function was performed by the National Inventor's Council of the Department of Commerce.

CARROLL L. WILSON,
Executive Assistant to the Director, Office of Scientific Research and Development.

OFFICE OF WAR INFORMATION (OWI). Prior to Aug. 31, 1945, when it was abolished, the OWI carried on an extensive program of psychological warfare against the enemies of the United States in Europe and in the Pacific. OWI personnel worked with the army and the navy in preparing and disseminating leaflets, in operating mobile loud speaker units, and in conducting propaganda broadcasts by both short and long wave. In liberated, neutral, and Allied countries, the OWI undertook to inform the people concerning the American war effort and the aims for which we fought, and broadly to make them acquainted with the nature of the American people and American culture. All available media—radio, broadcasts, motion pictures, publications, lectures and exhibits, library service—were employed. When the agency was abolished its foreign information services were transferred to a temporary International Information Service under the State Department.

Domestically the OWI continued its program of co-ordinating information about the war activities of the government and organized information programs on such matters as the need for Victory Gardens, War Bond sales, tin and fat salvage, Merchant Marine and nurse recruiting. The Domestic Branch prepared a plan for an informational campaign in consultation with the other government agencies concerned and then allocated facilities contributed by private industry to the program in question. The branch acted as a clearing house for contributed time on the radio, for moving picture short subjects prepared at OWI instance by the motion picture industry, for magazine articles and news stories, and for advertising space contributed by manufacturers.

Elmer Davis continued as director of OWI until the agency was abolished. Edward Klauber was associate director; Edward Barrett, director of the Overseas Branch; and Neil Dalton, director of the Domestic Branch.

JULIAN L. WOODWARD,
Assistant to the Director, Office of War Information.

OFFICE OF WAR MOBILIZATION AND RECONVERSION. See WAR MOBILIZATION AND RECONVERSION, OFFICE OF.

OHIO. East North Central state, United States; admitted to the Union Feb. 19, 1803. Population (1940): rural, 2,293,263; urban, 4,614,349; total, 6,907,612. Land area, 41,122 square miles, divided into 88 counties. Chief cities, with 1940 populations: Cleveland, 878,336; Cincinnati, 455,610; Columbus, the capital, 306,087; Toledo, 282,349; Akron, 244,791; Dayton, 210,718; Youngstown, 167,720; Canton, 108,401; Springfield, 70,662.

Chief State Officers, 1945.—Governor, Frank J. Lausche; lieutenant governor, George D. Nye; secretary of state, Edward J. Hummel; treasurer, Don H. Ebright; auditor, Joseph T. Ferguson; attorney general, Hugh S. Jenkins.

Judiciary.—Chief justice of the state supreme court, Carl B. Weygandt; associate justices, Edward C. Turner, Roy H. Williams, Charles S. Bell, Charles B. Zimmerman, William L. Hart, Edward S. Matthias.

Legislature.—General Assembly (Senate, 33 members; House of Representatives, 136) convenes biennially in odd years on the first Monday in January.

Education.—Public elementary schools (as of June 30, 1944), 3,750; teachers, 20,420; pupils, 714,267; average yearly salary of elementary school teachers, $1,690. Public junior high schools (June 30, 1944), 122; teachers, 2,746; students, 80,074; public senior high schools (June 30, 1944), 1,109; teachers, 14,617; stu-

dents, 339,777; average yearly salary of junior and senior high school teachers, $2,008. There are 45 institutions in the state that offer teacher training courses. Schools receiving financial aid from the state: Bowling Green State University, Kent State University, Miami University, Ohio State University, and Ohio University. Total state appropriation for education (1945), $45,000,000; appropriation by cities and counties, $87,094,641. Superintendent of public instruction, Kenneth C. Ray.

Finances.—Following is a report of Ohio's finances for the year 1944, supplied by the state treasurer's office:

Balance in treasury, Jan. 1, 1944	$131,782,225.02
Receipts, 1944	394,375,515.30
Total	$526,157,740.32
Disbursements, 1944	376,087,758.63
Balance, Dec. 21, 1944	$150,069,981.69

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	152,119	142,956	176,988
Oats (1,000 bu.)	40,285	37,224	52,890
Buckwheat (1,000 bu.)	283	294	304
Wheat (1,000 bu.)	40,889	46,805	62,508
Barley (1,000 bu.)	732	475	660
Rye (1,000 bu.)	1,132	608	604
Sugar beets (1,000 short tons)	325	113	220
Hay:			
Alfalfa (1,000 tons)	889	746	927
Clover and timothy (1,000 tons)	2,003	2,261	2,299
Tame (1,000 tons)	3,323	3,270	3,530
Soybeans for beans (1,000 bu.)	9,889	22,457	22,591
Tobacco (1,000 lb.)	25,433	25,347	22,740
Potatoes (1,000 bu.)	11,318	5,810	7,560
Apples (1,000 bu.)	4,914	5,395	1,230
Peaches (1,000 bu.)	732	1,095	750
Pears (1,000 bu.)	500	373	246
Grapes (tons)	22,760	24,400	5,000

OILS AND FATS. See CHEMISTRY.

O'KELLY, Sean Thomas, president of Eire: b. Dublin, Ireland, Aug. 25, 1883. Sean O'Kelly was elected second president of the Irish state on June 18, 1945, to succeed Dr. Douglas Hyde, and was inaugurated June 25 at St. Patrick's Hall, Dublin Castle. With Arthur Griffith, O'Kelly was one of the founders of Sinn Fein, and from 1908–10, was its honorary secretary. When the Irish insurrection began in 1916, he was a captain on the staff of Patrick Pearse, Irish poet and commander in chief of the rebellion forces. From 1919–22, he was Irish envoy to Paris and Rome, and envoy to the United States, 1924–26. He was vice president of the Executive Council and minister for local government and public health, Irish Free State, 1932–39, and after 1939, minister of finance and minister of education. President O'Kelly is one of Eire's foremost Gaelic scholars, and has been a frequent contributor to the Irish and American press on Irish politics.

OKINAWA. See MARINE CORPS, U.S.; RYUKYU ARCHIPELAGO; WORLD WAR, SECOND.

OKLAHOMA. West South Central state, United States; admitted to the Union Nov. 16, 1907. Population (1940): rural 1,456,771; urban, 879,663; total, 2,336,434. Land area, 69,283 square miles, divided into 77 counties. Principal cities, with 1940 populations; Oklahoma City, the capital, 204,424; Tulsa, 142,157; Muskogee, 32,332; Enid, 28,081; Shawnee, 22,053; Lawton, 18,055.

Chief State Officers, 1945.—Governor, Robert S. Kerr; lieutenant governor, James E. Berry; secretary of state, Frank C. Carter; treasurer, A. S. J. Shaw; attorney general, Randell S. Cobb.

Judiciary.—Chief justice of the Oklahoma Supreme Court, Thomas L. Gibson; associate justices, Wayne L. Bayless, Earl Welch, Ben Arnold, N. S. Corn, Monroe Osborn, Thurman S. Hurst, Denver Davison, Fletcher S. Riley.

Presiding judge of the Criminal Court of Appeals, Dick Jones: associate judges, Bert B. Barefoot and Thomas H. Doyle.

Legislature.—Oklahoma's legislature (Senate, 44 members; House of Representatives, 120) convenes biennially in odd years on the second day of January.

Education.—Public elementary schools (latest report, 1943–44 school year), 3,610; teachers, 11,035; pupils, 386,061; average yearly salary of elementary school teachers, $1,274. Public junior high schools, 95; teachers, 1,032; students, 39,272. Public senior high schools, 853; teachers, 5,106; students, 134,532; average yearly salary of junior and senior high school teachers, $1,459. Education in Oklahoma is compulsory for all children between the ages of 7 and 17, inclusive. There are 5 teacher training schools. Total state appropriation for education (1944), $14,792,940; appropriation by cities and counties (1944), $18,743,182.

Finances.—The following statement of Oklahoma's finances for the fiscal year 1944–45 were supplied by A. S. J. Shaw, state treasurer:

Balance in treasury, beginning of fiscal year 1944–45	$ 30,182,907.23
Receipts, 1944–45	97,454,175.25
Total	$127,637,082.48
Disbursements, 1944–45	89,443,330.95
Balance, beginning of fiscal year 1945–46	$ 38,193,751.53

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	26,821	32,958	27,835
Oats (1,000 bu.)	27,048	27,569	22,059
Wheat (1,000 bu.)	48,435	85,914	73,332
Barley (1,000 bu.)	4,970	3,990	2,352
Rye (1,000 bu.)	685	1,520	1,159
Sorghums for grain (1,000 bu.)	7,316	12,915	8,360
Flaxseed (1,000 bu.)	107	216	88
Cotton (1,000 bales)	565	634	390
Hay:			
Alfalfa (1,000 tons)	465	675	759
Tame (1,000 tons)	936	1,331	1,317
Wild (1,000 tons)	402	658	664
Pecans (1,000 lbs.)	16,960	14,000	22,500
Peanuts (1,000 lbs.)	42,090	111,180	147,900
Sweet potatoes (1,000 bu.)	792	1,040	850
Potatoes (1,000 bu.)	2,252	2,015	1,150
Peaches (1,000 bu.)	477	286	734
Pears (1,000 bu.)	143	96	203
Grapes (tons)	2,750	3,200	2,500

OLMSTEAD, Albert Ten Eyck, American orientalist: b. Troy, N.Y., March 23, 1880; d. Chicago, Ill., April 11, 1945. Professor of oriental history at the University of Chicago after 1929, Dr. Olmsead was one of the leading orientalists in the United States. His contributions to New Testament history have been of special importance. Dr. Olmstead received his B.A. degree from Cornell University in 1902, an M.A. the next year, and a Ph.D. in 1906. He studied in Jerusalem and Athens from 1904 to 1907, and from 1907 to 1908 led the Cornell expedition to

Asia Minor and the Assyro-Babylonian Orient. He taught at the Princeton Preparatory School, 1908–09, and then spent eight years at the University of Missouri, the last three as associate professor of ancient history. He was professor of history and curator of the Oriental Museum at the University of Illinois from 1917 to 1929, when he became Oriental Institute professor of oriental history at Chicago. During the year 1936–37, he was annual professor at the American School of Oriental Research in Baghdad, Iraq. Dr. Olmstead's special field was the period from Darius to Constantine, the latter portion including Palestinian and Syrian history, with the period of the life of Christ and the century after presenting special problems for the secular historian. He upset theological scholars in 1941 by claiming greater historical accuracy for St. John's Gospel than those of Matthew, Mark, and Luke. Among Dr. Olmstead's works are *Western Asia in the Days of the Sargon of Assyria* (1908); *History of Assyria* (1923); *History of Palestine and Syria* (1931); and *Jesus in the Light of History* (1942).

OMAN. See ARABIA.

ONISHI, Takijiro, Japanese naval officer: committed suicide in Tokyo, Aug. 17, 1945. Vice Admiral Takijiro Onishi had served as commander in chief of the Japanese naval air forces in the Philippines from November 1944 to May 1945, when he was made vice chief of the Navy General Staff during a general shake-up in the Navy high command. On May 31, 1945, Tokyo radio announced in a domestic broadcast that Admiral Onishi had been chosen for this position "because he was the originator as well as one of the persons who perfected the air special attack tactics," or Kamikaze suicide air attacks. In his suicide note addressed "to the spirits of members of the special-attack corps," Admiral Onishi declared that his death was an attempt "to make atonement to the souls of my former subjects and to members of their bereaved families." He urged "young men at large" to "attend properly to your peacetime circumstances, and maintaining steadfastly the spirit of the special-attack corps, do your utmost for the revival of the Japanese race and for world peace."

ONTARIO. One of the nine provinces of Canada, and next to Quebec, the largest; area, 412,582 square miles, of which 49,300 square miles are water. The population in 1941 was 3,787,655. The greatest extent of the province from east to west is 1,000 miles, and from north to south, 1,075 miles. Principal cities, with their populations in 1943, are: Toronto, 1,100,000; Ottawa, the Dominion capital, 215,000; Hamilton, 176,000; Windsor, 121,000; London, 86,000.

Government.—The government of the Province of Ontario is administered by a lieutenant governor, a Cabinet and a one-chamber legislature of 90 members. At the provincial election in June 1945, the following parties were returned to the legislature: Progressive Conservatives, 67; Liberals, 10; Co-operative Commonwealth Federation Party, 7; Labor Progressive, 2; Liberal-Labor, 3; Independent, 1.

Education.—There is a complete state system of elementary and secondary schools. In 1942 there were 7,426 day and evening schools of all grades in operation with 630,891 pupils enrolled. Certified teachers in these schools numbered 21,472. Total expenditure by the province on education in 1941–42 was $13,177,000. There are five universities—University of Toronto (founded 1827); Queen's University, Kingston; University of Western Ontario, London; McMaster University, Hamilton; Ottawa University, Ottawa. The University of Toronto has more than 1,000 professors and lecturers, and 7,129 students. The Royal Military College at Kingston is maintained by the Dominion government.

Finances.—In 1944, revenues and expenditures of the government were estimated to balance at $123,519,682. The public debt on March 1, 1943, was $704,864,361.

Agriculture, Mining and Manufacturing.—Ontario is rich in both agricultural and mineral resources. About 14,000,000 acres are under cultivation. The leading crops are wheat, rye, oats, barley, mixed grains, potatoes, hay and clover. In 1944 agricultural products were valued at $585,000,000. Livestock in 1942 included 527,000 horses; 1,149,900 milk cows; 1,489,300 other cattle; 688,900 sheep; 1,861,300 swine; and 24,621,800 head of poultry. Fruit growing is also important in Ontario, especially in the Niagara Peninsula. In 1942 the fruit crop was valued at $7,821,000. Minerals produced in 1942 included 2,763,824 ounces of gold and 4,452,787 ounces of silver. In 1944 the entire mineral output was valued at $210,000,000. The same year manufacturing establishments of Ontario produced goods valued at more than $4,000,000,000—slightly more than 50 per cent of all Canada's production. Ontario's exports in 1944 exceeded $1,500,000,000. The province's water power provides electric energy at the lowest cost in the world for comparative service in similar territory.

Highways.—In 1942 there were in Ontario 73,089 miles of public roads on which $18,122,435 were spent in that year. A considerable portion of the roads is hard-surfaced. Queen Elizabeth Way, extending from opposite Buffalo, N.Y., to Toronto, is one of the finest highways on the North American continent.

K. G. ARMSTRONG,
Director, Bureau of Public Information, Province of Ontario.

OPHTHALMOLOGY (Gr. *ophthalmos,* eye; *logos,* discourse or science of). Recent progress in ophthalmology has been gratifying. Chemical studies have been made of the composition of the crystalline lens. Glutathione is the tripeptide consisting of the amino acids—glycine, cysteine, and glutamic acid. The loss of glutathione is one of the factors in the production of cataract.

Diagnosis has been materially aided by improvement of many optical instruments including certain types of ophthalmoscopes and the corneal microscope and slit lamp. The use of red-free light by the utilization of filtering lenses enables the observer to note minute changes in the fundus more readily. Progress has been made in photographing the lesions of the eye, both those of surface character as well as those of the fundus. Angioscotometry, a phase of perimetry which charts changes due to the circulatory mechanism of the retina, has been developed.

Improvements have been devised in the tests for red-green color deficiency but no cures have been evolved. The defect is congenital. Knowledge of color blindness is still based on a number of old theories.

The ability of sailors and fliers to adapt to the dark has been measured by test lights exposed in flashes of one fifth of a second duration. Gradual training has been of some aid. Exposure to the blinding flashes of powerful

searchlights has diminished dark adaptability. Looking through filters of red glass or blue glass has not helped as much as formerly believed. Visual disturbances occur in pilots in the course of flying at high altitudes and also in power dives. Visual acuity is diminished following exposure to the beam of a searchlight. Drugs used to improve visual defects for night flying and high altitudes consist of ascorbic acid or of a synthetic preparation of 8-methyl caffeine. Introducing measured doses of light into the eye is another method of increasing visual acuity. Dark filters are worn for several days previous to night flying. Anoxia has a marked effect upon the function of the rod and cone layer, the optic nerve, and the cerebral cortex. Decrease in the ability to change the intensity of light and color is also accompanied by defective depth perception. Dark adaptation studies have been given impetus by war conditions. Visual ability, as far as darkness is concerned, may be divided into light adaptation (photopic vision) and dark adaptation (scotopic vision). Defective night vision may be a sign of vitamin A deficiency.

For better efficiency in flying operations at night, the flyer should maintain a well-balanced diet, and allow himself sufficient time to become dark-adapted before take-off (30 to 35 minutes in moderate moonlight or darker). Peripheral visual fields should be used by looking away from an object 10–15° instead of directly at it. Advantage should also be taken of contrast whenever possible to assist in locating enemy aircraft.

Visual standards have changed with the advent of the machine age. The man who pilots a plane must have normal vision (20/20) with both eyes, preferably without glasses. The man who drives a tank or truck should have at least 20/100 vision without glasses, correctible to 20/40 vision in each eye with glasses. Some individuals may be permitted to have less vision without glasses or less vision with correction if they are experienced in their work. Additional methods have been devised for the detection of malingerers.

Progress has been made in the knowledge of the character of the underlying principles producing squint (cross-eyes or strabismus). Eye exercises have proved beneficial in selected cases where the repetition of the act required of the eye has improved its efficiency. Orthoptic training, which is the name applied to these muscle exercises, has proved of great benefit before and after operation in those instances where surgery is required.

Contact lenses are now fitted on the basis of an impression made of the surface of the eyeball. Mold materials are used. Those most commonly used are negocoll, dental wax, Kerr's hydrocolloid, zelex, and Coe-loid powder.

Gonioscopy is the study of the angle formed in the anterior chamber, by the iris and cornea. A special contact lens is placed over the eye for the purpose of magnifying the chamber angle which is then viewed with the aid of the binocular loupe or a combination of the telescope and electric illuminating system, known as the gonioscope. Operations in the anterior chamber may be performed with the aid of the contact lens and gonioscope.

Aniseikonia (Gr. *a*, without or negative; *iso*, equal; *eikon*, image) is a condition in which the image as seen with one eye is larger than that seen with the other. Image size is equalized by the use of spectacles that consist of either a system of lenses with the magnifying effect of a telescope or the minifying effect of an inverted telescope, placed in front of one eye, or by a combination of both. In the latter instance, the eye seeing the smaller image is corrected by lenses having one half of the necessary magnifying effect, and the other, one half of the minifying effect.

In injuries of the eye, better methods have been evolved for using the X-ray in the removal of foreign bodies from the eyeball. The biplane fluoroscope, which enables the operator to look down on the eye and through the side of the eye, has been of great help in localizing foreign bodies in the course of an operation. The electromagnet is very effective for the removal of magnetic foreign bodies. Endoscopic instruments have been devised for the more effective removal of nonmagnetic foreign bodies. The foreign body is viewed by placing the endoscope in the eyeball through a small opening, and can thus be extracted with fine, small forceps.

The use of skin grafts for the correction of lid defects due to injury or disease has been vastly improved. The present-day techniques for corneal transplantation have given better results. In some cities an eye bank has been started. This consists of the eyes taken from stillborn infants and from individuals who have just died. These are preserved under conditions of refrigeration and in preserving solutions for use as needed.

Contributions have been made to the improvement of methods in traumatic surgery, and in the treatment of postoperative complications. Cataract surgery has been improved by many methods. A keratome, instead of a cataract knife for opening into the eyeball, is being used by some. Corneoscleral sutures are used after the lens is removed. This lessens the danger of a prolapse of the iris which is one of the complications of cataract surgery. The operations, designed to relieve patients suffering from infection of the tear sac, are more successful now because of the addition of new techniques.

X-ray and diathermy are being used with better results in the treatment of vascular tumors in and about the eye, particularly in angiomatosis retinae.

In the diagnosis of glaucoma, a disease due to increased pressure within the eye, improved methods have made earlier diagnosis possible, and treatment more satisfactory. The fields of vision may now be studied in such a way as to map out minute changes in peripheral vision. Prostigmin (5 per cent) furmethide (10 per cent), mecholyl (20 per cent), and carbaminoylcholine chloride (0.75 per cent), (doryl) have been added to the drugs used in the treatment of glaucoma. Eserine salicylate (one fourth of 1 per cent) and pilocarpine nitrate (2 per cent) are still, however, in common use.

Epidemic keratoconjunctivitis, formerly rare, has been seen more commonly in the Western Hemisphere. This condition has been known in Malaya for a long time. The characteristic signs of this disease are sustained swelling of the lids, sensation of foreign body in the eye, inflammation of the inner surface of the lids with the formation of small white bodies (follicles), enlargement of the lymph glands of the neck, and the formation of small white opacities in the cornea. Blood plasma, taken from convalescing patients, has a marked effect on lessening the activity of the causative agent, a filtrable virus. This possibly causes the opaque areas to become smaller.

Keratomalacia is a disease of the cornea, due to vitamin A deficiency. Shark liver oil, which is very rich in vitamin A, is used in the treatment.

Punctate keratitis, an inflammatory disease of the cornea, characterized by small, superficial, opaque spots, is treated by the use of vitamin B complex or riboflavin. A study of the bacterial flora of the conjunctiva has indicated that the causative organisms producing a moderate inflammation of this lining, varies in different parts of the world. Generally speaking, the more common of these organisms are the staphylococcus, streptococcus, pneumococcus, and hemophilus duplex (Morax-Axenfeld bacillus). Choline has been used in the treatment of ulcers of the cornea.

The new mydriatic and cycloplegic drug is dibutoline sulphate. Buffered solutions, wetting agents, and iontophoresis have been utilized to aid the cornea in absorbing drugs. The *p*H of a buffered solution is the determining factor as to its usefulness in the eye, since there is so much variance in the acidity or alkalinity of the lacrimal (tear) fluid. Wetting agents, particularly aerosol, have been used with increasing frequency to aid the ability of the sulfonamide drugs to enter the eye. In some cases of acute glaucoma in which miotics have failed to reduce tension, intravenous injections of hypertonic solutions, among them sorbitol, have been used.

Chemotherapy has made great strides in the cure of ocular diseases. The sulfon drugs or sulfonamide series of drugs, consist primarily of sulfanilamide, sulfadiazine, sulfathiazole and sulfapyradine. Others, less frequently used, are sulfasuccinamide and sulfaguanidine. The sulfa derivative drugs used in ophthalmology are either used locally in ointment or drop form, or given by mouth. Sulfadiazine is the type most commonly given by mouth, because it is less toxic. Sulfathiazole is the most effective one for local application. These drugs are useful in inflammations of the conjunctiva and cornea. They are also effective in inflammations of the iris and ciliary body of the eye (uveitis), inflammation of the orbit (orbital cellulitis), optic neuritis, trachoma and gonorrheal conjunctivitis. If the infection is caused by the pneumococcus, sulfadiazine or sulfapyradine is advocated. If due to the staphylococcus, sulfathiazole is recommended. In infections due to the gonococcus, sulfathiazole or sulfapyradine acts as a powerful antibiotic. The sulfonamide drugs are also being used in trachoma.

Another chemotherapeutic agent is penicillin. It accomplishes its antibacterial effect by lessening the activity of certain microorganisms. It is very effective in severe infections of the eye, particularly those affecting the surface layers. It is used in drug or ointment form containing 1,000 Oxford units per cubic centimeter. It is also used as an intramuscular or an intravenous injection, and as such is given dissolved in physiological salt solution (0.9 per cent salt in water). From 20,000 to 160,000 units per day are given in divided doses by one of these methods. Some of the more common microorganisms producing diseases of the eye that succumb to penicillin are staphylococcus, streptococcus, gonococcus, meningococcus, pneumococcus, and treponema pallidum (causative agent of syphilis). The germs producing gas gangrene (clostridium welchii) and tetanus (clostridium tetani) are also destroyed by penicillin. Both sulfathiazole and penicillin have been injected into the anterior chamber for the treatment of iridocyclitis and uveitis.

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ROLAND I. PRITIKIN,
Loyola University School of Medicine Faculty, Chicago, Ill.; formerly Lieut. Col., Medical Corps, Army of the United States.

ORANGE FREE STATE. See SOUTH AFRICA, UNION OF.

ORANGES. See CITRUS FRUITS.

OREGON. Pacific state, United States; admitted to the Union Feb. 14, 1859. Population (1940): rural, 558,009; urban, 531,675; total, 1,089,684. Land area, 96,350 square miles, divided into 36 counties. Principal cities, with 1940 populations: Portland, 305,394; Salem, the capital, 30,908; Eugene, 20,838; Klamath Falls, 16,497; Medford, 11,281; Astoria, 10,389; Bend, 10,021.

Chief State Officers, 1945.—Governor, Earl Snell; secretary of state, Robert S. Farrell, Jr.; treasurer, Leslie M. Scott; attorney general, George Neuner.

Judiciary.—Chief justice of the Oregon Supreme Court, J. O. Bailey; associate justices, Harry H. Belt, James T. Brand, Arthur D. Hay, Percy R. Kelly, Hall S. Lusk, George E. Rossman.

Legislature.—The state legislature (Senate, 30 members; House of Representatives, 60) meets biennially in odd years.

Education.—Public elementary schools (latest report, 1943–44 school year), 1,376; teachers, 5,090; pupils, 163,282; average yearly salary of elementary school teachers (1944–45), $1,781. Public junior high schools (1943–44), 32; teachers, 343; students, 11,662; average yearly salary of junior high school teachers (1944–45), $1,939. Public senior high schools (1943–44), 241; teachers, 2,404; students, 51,126; average yearly salary

of senior high school teachers (1944–45), $2,157. There are 3 colleges of education and 2 normal schools in the state. The three colleges of education as well as Oregon State College, and the University of Oregon, receive financial aid from the state. Total state appropriation for elementary and secondary education in 1944, $7,300,000 (approx.); appropriation by cities and counties, $18,000,000 (approx.). Education in Oregon is compulsory for children between the ages of 7 and 16, inclusive.

Finances.—Following is a statement[1] of Oregon's finances for the fiscal year 1943–44, supplied by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1943–44	$ 73,080,619.84
Receipts, 1943–44	137,086,085.80
Total	$210,166,705.64
Disbursements, 1943–44	119,585,842.88
Balance, beginning of fiscal year 1944–45	$ 90,580,862.76

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	1,907	1,587	1,526
Oats (1,000 bu.)	8,998	10,828	8,959
Wheat (1,000 bu.)	18,724	23,105	21,603
Barley (1,000 bu.)	5,497	7,142	6,785
Rye (1,000 bu.)	488	450	468
Peas, dry field (1,000 bags)	175	575	388
Hay:			
Alfalfa (1,000 tons)	710	657	710
Clover and timothy (1,000 tons)	185	198	198
Tame (1,000 tons)	1,598	1,627	1,732
Wild (1,000 tons)	238	235	278
Potatoes (1,000 bu.)	7,289	10,340	11,610
Apples (1,000 bu.)	3,165	3,432	2,698
Peaches (1,000 bu.)	416	606	502
Pears (1,000 bu.)	3,720	4,354	4,842
Grapes (tons)	2,100	2,300	2,400
Cherries (tons)	18,990	20,700	22,900

ORKNEY ISLANDS. An archipelago off the northern Scottish coast constituting a single county of Scotland. The Orkneys, separated from Caithness by the six-mile-wide Pentland Firth, comprise 90 islands and islets with an aggregate area of 375.5 miles. The principal islands are Pomona (or Mainland), Hoy, South and North Ronaldshay, Westray, Sanday, Eday, Stronsay, and Rousay. A third of the islands are inhabited, the population in 1940 being estimated to number 21,700. Kirkwall (pop. 3,673), on Pomona, is the county town. Oats, turnips, and hay are the chief crops of the Orkneys, and about 16,000 acres are in pasturage. The surrounding waters yield large quantities of herring, cod, and lobsters.

Scapa Flow, lying between Pomona and Hoy, sheltered the British Grand Fleet during the First World War; in October 1939 the defenses of the anchorage were penetrated by a German submarine, which sank the battleship *Royal Oak*. Construction was then commenced of a causeway to protect the naval base on its eastern approaches. Formally opened on May 12, 1945, the mile-and-a-half seawall, which cost £2,000,000, joins South Ronaldshay and some islets to Pomona, the Pentland Firth then becoming the only free water to the east until the northern tip of Pomona, 30 miles beyond.

OSEL (Saaremaa), an Estonian island in the Gulf of Riga, second largest in the Baltic; area, 1,010 square miles; pop. 60,000. The principal town is Arensburg (Kuresaare), pop. 4,339, on the southeast coast. Wheat, hemp and flax are exported; fishing is also an important industry. In September 1939 Estonia permitted the landing of Russian troops on Ösel, and, together with the republic, it was incorporated into the USSR the following year. German forces seized the island in September 1941. On Oct. 6, 1944, the Russians once more landed on Ösel, and they completed its recapture on Nov. 24, 1944.

OSTEOPATHY. Termination of hostilities found the osteopathic profession in circumstances different from those of any other school of medicine. During the war those in charge of the medical departments of the army, navy and other armed forces (excepting the United States Public Health Service) had refused to permit osteopathic physicians and surgeons to take examinations for commissions as medical officers. This was in the face of repeated acts of Congress providing for the payment of such men, and expressions by the Office of Production Management and Selective Service System as to their qualifications. Therefore these services had to be utilized in other fields of health work and in other activities of the armed services.

Months before hostilities began the Office of Production Management had said to Selective Service System: "The directives of the Selective Service Act provide for the 'maintenance of national health, welfare, and interest' in civilian as well as military life. . . All approved osteopathic colleges currently give general training in surgery and obstetrics, and in the majority of states graduates are licensed to practice in these two fields. . . It seems that the national interest would be best served by permitting [osteopathic] students to complete their training . . . and by permitting [osteopathic physicians] to serve in their civilian capacity rather than in the armed forces, where their professional skills would not be employed."

Selective Service therefore as early as July 16, 1941, directed that both osteopathic physicians and osteopathic students were necessary men in specialized professional fields and subject to deferment. This continued throughout the war. And from December 1942 until nearly the end of the war, pre-professional students preparing to study osteopathy also were subject to deferment.

This is in contrast with the First World War. In considering the draft law in 1917 the Senate inserted a provision to exempt medical students. The House rejected it. However the War Department met the situation by immediately furloughing back to their respective colleges inducted students preparing for the degree, Doctor of Medicine. This fact was brought out in the House of Representatives in 1918 when Congress approved an amendment to exempt medical students. Not only were osteopathic students not deferred during that war, but no steps were approved for expediting their release to resume their studies when the war had ended.

In the Second World War in order that the best possible service might be rendered to the public, the osteopathic state associations operated in conjunction with state Selective Service officials to be sure that osteopathic physicians and surgeons at least within the draft age located only in places where their services were essential. At the end of 1945 Congress established a department of medicine and surgery in the Veterans' Administration, and provided for

[1] Most recent made available.

the appointment therein of osteopathic physicians.

RAY G. HULBURT,
Editor, Journal, American Osteopathic Association.

OUBANGUI CHARI. See FRENCH EQUATORIAL AFRICA.

OUMANSKY, Constantine A., Soviet ambassador to Mexico: b. Nikolaev, Ukraine, Russia May 14, 1902; d. in a plane crash, Mexico City, Jan. 25, 1945. Responsible for some of the Soviet Union's most delicate and important foreign-relation negotiations, Mr. Oumansky was credited with greatly improving Russia's position throughout the Western Hemisphere, particularly in Latin America.

Only 15 when the Russian revolution ended the Czarist regime, Oumansky soon went to Moscow where he was graduated from the university in 1921. While a student at the university he joined the staff of Tass, the official world news agency of the Soviet Union, at various times covering Rome, Paris, and Geneva. He was a member of Maxim Litvinov's party, when as commissar of foreign affairs, Litvinov went to Washington to negotiate for United States recognition of Russia in 1933. He returned to Washington in 1936 to serve first as counselor to the Russian embassy, and after 1938, as its chargé d'affaires. He was made ambassador to the United States in 1939, the youngest diplomat known to have held a post of that importance in Washington. When the United States planned to give aid to Russia, he accompanied the first supply mission of Americans back to his country in September 1941, and helped to show them Russia's needs. In November of that year, Litvinov was appointed to succeed him, and he was then made director general of Tass, and was named to the Collegium of the Foreign Commissariat Governing Board. It was a logical step for him to be sent to Mexico with ambassadorial rank when the Foreign Commissariat decided to move for better relations with Latin-American countries. He arrived in Mexico City in June 1943, and quickly established diplomatic relations of first rate importance. At the time of his death, Colombia, Costa Rica, Nicaragua, Mexico, Cuba and Uruguay had renewed diplomatic relations with, and had recognized Soviet Russia, mostly through his efforts, despite much suspicion and anti-Communist reaction from conservative and Catholic elements in Latin America. Mrs. Oumansky, three members of the Soviet embassy and four crew members of the plane were killed in the same accident that ended the life of the ambassador.

OUTER MONGOLIA. See MONGOLIAN REPUBLIC.

OXFORD AND ASQUITH, COUNTESS OF (MARGOT ASQUITH): b. near the Scottish border, 1864?; d. London, July 28, 1945. Widow of Herbert Henry Asquith, famous Liberal prime minister of Great Britain from 1908 to 1916, Lady Oxford for 50 years moved in the inner circle of Britain's politics and government and was famous for her caustic tongue and her books of candid commentaries on the notables of the Victorian, Edwardian, and Georgian eras.

The daughter of Sir Charles Tennant, Alice Emma Margaret Asquith spent her early years at her father's country place near Edinburgh, and then moved to London. She married Herbert Asquith in 1894; three prime ministers, Gladstone, Rosebery, and Balfour signed her marriage register. Eleven prime ministers of England were numbered among her acquaintances, as well as many famous writers, including George Meredith, John Addington Symonds, Alfred Austin, and George Bernard Shaw. Her *Autobiography of Margot Asquith* created a sensation in London and American society when it was first published in 1922. Her other books include *Persons and Places* (1925); *Lay Sermons* (1927); *Octavia* (1928); *More Memories* (1933); and *Off the Record* (1944).

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PAHANG. See BRITISH MALAYA.

PAINTING AND SCULPTURE. The year of the V-days which wrought vast changes in the economic fabric of America, had, except for isolated incidences, little effect on the wartime tonality of the art picture. The boom market in contemporary art patronage continued without pause, as more and more middle-class Americans entered the formerly elite circle of art collectors —product, primarily, of two main factors: namely, the end results of the intelligent, long-range program of cultural education, and the more material fact that people could not spend their money on radios and automobiles. Americans were beginning to discover aesthetic pleasure as compensation for mechanical conveniences. Although representing disconnected returns, two instances indicate this strong trend toward art ownership: the gross intake of the three leading art auction firms skyrocketed to $11,408,652; Dan Lutz, noted romantic painter, entered 42 California collections without the benefit of a New York dealer.

As a fortunate corollary of this spreading appreciation, there were continuing signs of better craftsmanship and gains in painterly knowledge, marking a further departure from the fumbling technique and dreary color that contemporaries had come to think made them modern. Also on the assest side was waning subject-interest in Astoria slums and Midwestern silos. Judging from the large national exhibitions, American artists are returning, at least for weekend visits, to that ivory tower for inspiration along more purely aesthetic lines. All these trends were evident during the past two years; it is only that 1945 carried them forward. Those who saw the Whitney Museum exhibition of paintings by refugee artists from Europe appear to have taken the lesson seriously. Decadent in thought and empty of any real contact with life those paintings may have been, yet we must admit that the Europeans as a group are superior to us as a group when it comes to skill in putting paint on canvas. Ability to be articulate, in words or in paint, comes only through the process of hard work, and Americans, raised in a conveyor-belt envi-

ronment, too often think that personal emotions hastily expressed are enough to designate the artist.

As millions of young American fighters, having once again defended their country far from native soil, waited impatiently for ships, interest in war art, including the on-the-spot reports of United States combat artists and *Life* correspondents, dropped rapidly on the home front. It was First World War history repeating itself, leaving us with the bare hope that this desire to escape a bitter experience will not be carried too deeply into political thought, endangering international co-operation and the future of "One World." Many wonder what will eventually happen to the huge quantity of official art painted during the war. At year's end there were rumors that a National War Museum would be established in Washington, D.C., presenting visually the military history of the United States, housing paintings, photographs, newsreels, maps and actual weapons. Modern display techniques would help make this a fitting memorial to the dead of this war, and dramatize the lesson of the atomic bomb. At present, however, such a museum is not yet in the blueprint stage.

While it is true that more Americans are buying art today than at any time since the advent of modernism, it is also a fact that our changing economy and war-necessitated taxes, in some cases prohibitive, have largely eliminated the wealthy, leisure class, upon which art throughout the ages has relied for its main support. If fine art was to find an economic reason-for-being in an age of diminishing idealism—wherein emphasis has been switched from brain to brawn—then a new factor had to be discovered. It was at this stage that industry made its entrance as a powerful patron of the arts, some wisely and with dignity, others with the near-sighted policy of turning creative artists into amateur illustrators.

Most successful of these adventures of industry among the nation's fine artists is that of *Encyclopaedia Britannica*, which came to illustrate and remained to acquire one of the finest collections of contemporary American art. International Business Machines Company is continuing its program of sending art exhibitions as goodwill ambassadors to foreign lands. Standard Oil Company of New Jersey commissioned several noted artists to paint the vital role of oil during the war and has acquired some excellent pictures. The Upjohn Company bought existing easel paintings to illustrate its health messages and is now sending its art collection on tour. Pepsi-Cola conducts each year a competition to acquire paintings for its calendar and build an art collection; results have been valuable to both company and artists. Other industrial firms that have found mutual benefits through co-operation with fine artists are Container Corporation of America, Capehart, De Beers, and United States Brewers. There are two dangers to be avoided, if this alliance between industry and art is to develop its obvious potential—the artist must not "paint down" to his mass audience; the industrial leader, when he hires an artist, must permit that artist to function as an artist, not as an illustrator.

Despite wartime restrictions, several large and important exhibitions were arranged by museum directors during the year. The Rhode Island School of Design Museum, under Kenneth Washburn, staged a show of paintings of Old and New England, presenting to perfection the art of our forefathers and their British contemporaries. Robert Feke and Ralph Earl emerged as strongest voices among our homespun ancestors, speaking to us in ringing tones of courage and individual enterprise. Also, as part of this trend toward reappreciation of early Americans, the Whitney and Worcester museums collaborated on an exhibition of Ralph Earl, colonial master, presenting a full view of his talents by including portraits and landscapes from three distinct periods—before, during, and after his trip to England. The Metropolitan Museum of New York held a comprehensive exhibition for William Sidney Mount, 19th century genre painter, arranged from the research of Bartlett Cowdray and William Warner Williams. Attention was drawn to the Hudson River school through an exhibition presented by the Art Institute of Chicago and the Whitney Museum of New York under the guidance of Frederick A. Sweet. Wrote C. J. Bulliet: "Here, in 164 pictures, was revealed in all its excellences, all its absurdities, the most important purely native art movement we have had, extending roughly from 1800 to 1875."

Among the tributes paid to individual contemporaries during the year, first place must go to the New York Museum of Modern Art's distinctive review of the passionate art of Georges Rouault, who at the age of 75, having survived the miseries of two wars, is still working with fresh, creative instincts. Margaret Breuning termed this notable show "a torrential impression, the pouring out through many years and in many forms of an intense, passionate nature." In Buffalo, the Albright Art Gallery opened the first comprehensive memorial exhibition of the work of Aristide Maillol, famous French sculptor killed in 1944 in an automobile accident. More than 100 works were assembled by Director Andrew C. Ritchie from public and private collections—indicative of Maillol's popularity on this side of the Atlantic. Stuart Davis, pioneer in the abstract idioms since the far-off days of the "Armory Show," was honored by the Museum of Modern Art with an impressive retrospective show. His creative goals over the course of 30 years—including *Eggbeater* and *Boogie Woogie* themes—were given pictorial recapitulation. The "Philadelphia Story," as illustrated by Philadelphia *Press* artists, William Glackens, George Luks, Everett Shinn, and John Sloan, was retold at the Philadelphia Museum.

On the occasion of its 75th birthday, the Salmagundi Club, stronghold of good craftsmanship and tradition, held an exhibition that broke precedents right and left. For the first time in Salmagundi history, 15 nonmembers were invited to exhibit. For the first time a nonmember jury of awards distributed three $1,000 prizes, all to nonmembers—Jon Corbino for *Circus Aerialists*, Edward Hopper for *Office at Night*, and Reginald Marsh for *Holy Name Mission*.

The opening of a new, permanent installation of works of Greek art at the Metropolitan Museum was an event of importance. While we have long accepted the intellectual achievement of the Greeks, we have been inclined to take for granted their glory in the fields of plastic and pictorial art without examining it too closely, due mostly to monotonous museum presentation. The Metropolitan has now clarified the problem.

Perhaps the most controversial exhibition of the year came as a byproduct of the attempt of Halpern Associates to combine arts and antiques at New York's 17th Regiment Armory. Thirteen

art critics were each invited to select ten contemporary paintings and two sculptures. The art world, two months later, was still discussing their selections, mostly from the negative angle. However, 76,000 paid a dollar each to see the show.

Another exhibition that contended successfully with headlines heralding labor strikes and civil hatred was the second Pepsi-Cola competition, badly installed in the Mezzanine Gallery at Rockefeller Center, New York. The show, as a unit, was superior to last year's, but the prizes were of lower caliber. From 150 exhibits, dual-juried, Paul Burlin's poorly conceived painting of a *Soda Jerker* was awarded top honors and $2,500. Second prize ($2,000) went to Max Weber; third ($1,500), to Gregorio Prestopino; fourth prize ($1,000), to Mark Tobey; and fifth ($750), to Zoltan Sepeshy. Fifteen $500 awards went to the following: Ivan Le Lorraine Albright, Ilse Bischoff, Audrey Buller, David Burliuk, Fred Conway, Jon Corbino, Terence Duren, Carl Gaertner, Adams W. Garrett, Doris Kunzie, James Lechay, Julian Levi, Sgt. Oke Kordgren, Phil Paradise, and Lester Rondell.

The large national exhibitions continued their wartime course, remaining predominantly invitation affairs. As such, they maintained a high level of professional competence, but missed the thrilling element of new talent. Carnegie Institute, as usual, led the national field with its "Painting in the United States, 1945" exhibition —substitute since Pearl Harbor for the famed Carnegie Internationals. This year's show of 350 American paintings demonstrated the uncanny accuracy with which Acting Director John O'Connor, Jr., accorded true proportional representation to all the different kinds of painting that live side by side in our democracy (to paraphrase Jo Gibbs).. Coveted first prize of $1,000 went to young, progressive Phillip Guston for *Sentimental Moment.* For his terrific indictment of war, called *Survivor,* George Grosz took second honors. Franklin C. Watkins placed third. Honorable mentions were voted to Samuel Rosenberg, Philip Evergood, Louis Guglielmi, and Julian Levi.

The overall trend of the Pennsylvania Academy's 140th annual was essentially more modern than has been the standard at the nation's oldest exhibition. Abraham Rattner's brilliant semiabstract *Kiosk* won the Temple Medal, while Stuart Davis's intellectual and fugue-like *Ultra Marine* composition took the Scheidt Prize, both honored members of the aesthetic left wing. Other winners were Sigmund Menkes, Henry Mattson, Eugene Speicher, Catherine Grant, Oronzio Maldarelli and José de Creeft (for his breathtakingly powerful head of Rachmaninoff).

The Corcoran Biennial, while being more right of center than the Pennsylvania Annual, yet gave a good cross section of our contemporaries. Here the jury awarded the Clark Prize of $2,000 and the Corcoran Gold Medal to Reginald Marsh's *Strip Tease in New Jersey,* a typical example of this 20th century Rowlandson's probing brush. Second place went to Zsissley (Malvin Albright) for his repertorial *Deer Isle, Maine.* Isabel Bishop's *Two Girls Outdoors* was voted third honors, and Jean Liberté's highly romantic *Twin Lights, Rockport* placed fourth.

Critic C. J. Bulliet observed a persistent religious trend at the 56th Chicago Annual, indicating perhaps "a strong reaction against the crass materialism of our mechanized war, where the God the war-makers worshipped in fact if not in spirit was the God of Napoleon—the God who fights on the side of the heaviest cannon." This reaction, however, did not dominate the prize canvases. Amid loud laments from the moderns, the jury awarded the $750 Garrett Prize to Kenneth Hayes Miller's Bouguereauesque *"Reverie.* Edward Hopper's beautifully lighted *Hotel Lobby* took the famous Logan Award. Charles Sheeler and Yasuo Kuniyoshi were the Harris winners. Other winners were Paul Cadmus, Edward Laning, Eldizier Cortor, Grigory Gluckmann, Kay Sage, Raymond Breinin and Richard Bowman.

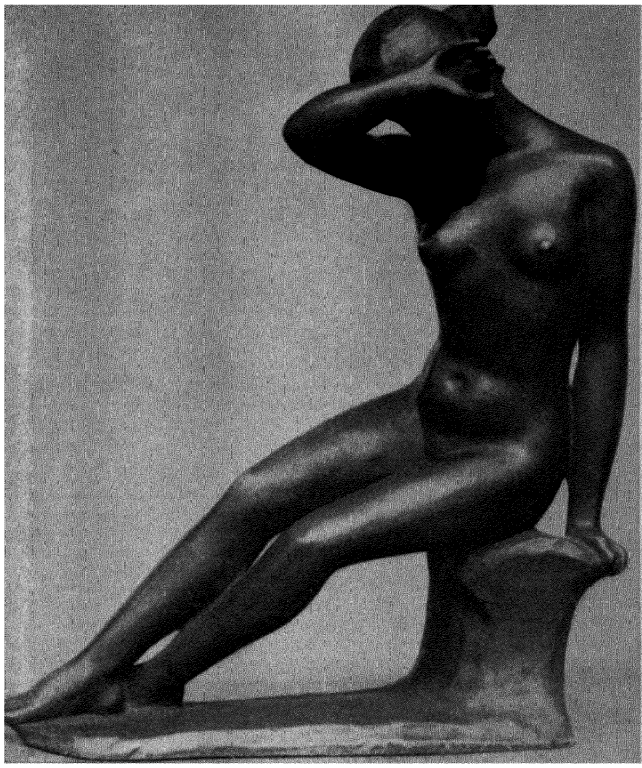
Once again no new museum construction took place, although in November, Director Francis Henry Taylor startled the art world by announcing ambitious plans for the renovation and expansion of the Metropolitan Museum. More than $10,000,000 will be spent when postwar conditions permit. Also awaiting the green light are Frank Lloyd Wright's plans for the ultramodern Museum of Non-Objective Painting, to be erected in New York at 89th Street and Fifth Avenue, just across the street from the National Academy.

Museum personnel underwent several changes. Dr. W. R. Valentiner, scholar, writer, and for 21 years director of the Detroit Institute of Arts, resigned and was succeeded by Edgar Preston Richardson, his assistant for more than a decade. Walter H. Siple, for 16 years director of the Cincinnati Museum, resigned his post. He was succeeded by Philip R. Adams, for 10 years head of the Columbus (Ohio) Gallery of Fine Arts.

Since it would prove nothing to list here all the museum acquisitions made in the fine arts during the year—unless it be that all types of art are now selling—it must suffice to mention a few of the highlights. The Rhode Island School of Design Museum acquired a notable Flemish panel by Hugo van der Goes, one of three Goes portraits in America. Another Rhode Island treasure is the beautiful Renoir, *The Young Shepherd,* painted when the artist was 70 and crippled by arthritis, but still the master of impressionism. Two important donations were made to the John Herron Art Institute in memory of Daniel W. and Elizabeth C. Marmon—Seurat's famous *Le Port de Gravelines* and Cézanne's *La Maison en Provence.* The Cincinnati Museum purchased a small but characteristically beautiful Monet painting, *Les Courses D'Auteil.* The City Art Museum of St. Louis was enriched by Georges Braque's widely-exhibited *Blue Mandolin.* A pair of Robert Feke portraits, likenesses of Mr. and Mrs. Josiah Martin, after spending 199 years of obscurity together on Long Island, were separated—the former going to the Toledo Museum, and his devoted spouse to the Detroit Institute.

George Grey Barnard's notable collection of medieval and Renaissance art was purchased by the Philadelphia Museum, according to the sculptor's will which provides that the money go toward erecting his First World War memorial. Alfred H. Holbroog, New York lawyer, gave a collection of 100 paintings by 100 American artists to the University of Georgia. The Dallas Museum formulated an intelligent buying program, acquired paintings by Thomas Benton, Henry Varnum Poor, Gladys Rockmore Davis, George Grosz, Alexandre Hogue, Otis Dozier, among others, and William Zorach's sculpture, *Demeter.* Carnegie Institute purchased examples by Hobson Pittman, John Carroll, Benjamin Kopman and Nicolai Cikovsky. Whitney purchases,

PAINTING AND SCULPTURE



Courtesy *Art Digest*

Nude Figure by Aristide Maillol.



Courtesy Midtown Galleries

Sentimental Moment **by Philip Guston.**



Courtesy Kelly Galleries

Autumnal Fantasy **by Charles Burchfield**

always news, included oil paintings by Paul Burlin, Tully Filmus, Carl Gaertner, Walter Houmere, Abraham Rattner, Dorothy Varian, Karl Zerbe, Lee Jackson, Julio de Diego, Rico Le Brun, and Irene Rice Pereira.

Death was overly active in the American art world. N. C. Wyeth, patriarch of the Wyeth dynasty of painters, was killed in an automobile accident near Chadd's Ford, Pa., October 19, three days before his 63d birthday. Max Kalish, known for his sculptured portraits of workmen and world leaders, died in New York March 18, aged 54. Alexander Stirling Calder, sculptor whose monuments adorn public buildings and parks throughout the country, died January 6 in Brooklyn at the age of 74. The Metropolitan houses one of his best known figures, *The Man Cub*, a portrait of his son Sandy Calder, showing the now prominent modernist at the age of four. John F. Carlson, noted conservative landscape painter and pioneer settler of the Woodstock Art Colony, died March 20, aged 70. Frank Marsden London, well-known still life painter and distinguished designer of stained glass, passed away at his New York home March 17. He was 68.

Attilio Piccirilli, sculptor and head of the sculptural firm of Piccirilli Brothers, died in a New York hospital October 8, aged 79. His death followed by only two days that of his brother Gutulio, co-artist and business manager of the family organization. Four brothers survive. Death came to Vally Wieselthier, a leader of the modern school of ceramic art, September 1. She was 50. Reneé Lahm, best known for her gay and effervescent watercolors, died in Tucson, Ariz., May 3. Orlando Rouland, noted portrait painter, died in New York June 26, aged 72. Guy Gayler Clark, dean of the Cooper Union Art School since 1938, died at the age of 62, the night of April 16. Among the art dealers to pass from the scene were Otto Torrington, partner of Hermann Wunderlich in the firm of Kennedy and Co.; Stephenson Scott, president of the 47-year-old art firm of Scott and Fowles; and Otto Bernet, co-founder and vice president of the Parke-Benet Galleries.

In closing the eventful year of 1945, it might be of interest to those who believe America sport-mad to review a few figures compiled by Paul Parker, director of the new Des Moines Art Center. In 1944 the Chicago Cubs baseball team had 640,710 paid customers; the Art Institute of Chicago drew 1,014,460; the Metropolitan Museum outdrew the New York Yankees by more than 400,000. Are people interested in art? Parker answered his own question: "*Time* magazine, hardly an eleemosynary outfit, seems to devote more linage to art than to baseball—or to football, basketball and horse racing combined. Wouldn't you say that *Life* magazine devotes somewhat more picture space to art than to sports?"

See also LATIN AMERICAN ART; METROPOLITAN MUSEUM OF ART.

PEYTON BOSWELL, JR.,
Editor, The Art Digest.

PALAU, pä-lou', ISLANDS. See JAPANESE SOUTH SEA ISLANDS.

PALESTINE. A mandate of the League of Nations in the middle East bordering on the Mediterranean. It has been administered by the British government since the mandate came into effect on Sept. 29, 1923. The mandate for Palestine also includes Transjordan (q.v.), which has an independent government, and to which some clauses of the mandate do not apply. Palestine, with an area of 10,429 square miles, had an estimated population on Dec. 31, 1943, of 1,676,571; of this total, 1,028,715 were Moslems, 502,912 Jews, 131,281 Christians, and 13,663 others. The estimated increase in population from the 1922 census till the end of 1943 was 924,523; among Moslems the estimated increase was 439,538, among Jews 419,122, and among Christians 59,817. Between April 1, 1939, and March 31, 1944, 51,186 Jewish immigrants, plus their wives and children, entered Palestine. During 1944 a total of nearly 15,000 Jewish immigrants entered the country, some 3,000 of them being children. Jerusalem (pop. 149,300 in 1943) is the capital, and other cities are Tel Aviv (148,100), Haifa (120,800), Jaffa (90,400), Gaza (29,300), Nablus (23,000), Hebron (22,400), Lydda (17,000), Nazareth (12,100), Tiberias (11,700), Acre (10,300); and Bethlehem (8,600).

Government.—Palestine is administered by a high commissioner (Lieut. Gen. Sir Alan Gordon Cunningham took office Nov. 21, 1945) who is assisted by nominated executive and advisory councils. For administrative purposes, the country is divided into six districts, each under a district commissioner; and local government in 24 municipalities is in the hands of elective councils. The official languages of the country are Arabic, Hebrew, and English.

The Jews have internal autonomy, cultural and communal; an Elected Assembly imposes taxes and license fees, and through the Va'ad Leumi (General Council) administers such matters as the educational system and health services and represents the community in its relations with the government. The Palestine and British governments recognize the Jewish Agency for Palestine as the medium in all matters pertaining to the upbuilding of the Jewish national home and the supervision of immigration. The Jewish Agency has established numerous bodies for carrying out economic constructive tasks; besides mortgage companies, these bodies include the Industrial Trust (with a paid-up capitalization of £P200,000) and the Agricultural Trust (£P150,000 capital). In 1945 the government and Jewish representatives combined to establish the Board for Scientific and Industrial Research.

Finances.—Expenditures for the fiscal year ended March 31, 1943, were £P10,253,283, as compared with £P7,463,602 for the preceding year, while revenues for 1942–43 amounted to £P8,851,879, as compared with £P8,325,553 in 1941–42. The outstanding external debt of the government on March 31, 1943, amounted to £P3,600,000. Surplus balances on April 1, 1943, amounted to £P3,935,348. The expenditure for 1944–45 was budgeted at £P17,000,000, allocated as follows: £P7,500,000 for normal services; £P7,000,000 for extraordinary expenses, including the cost of living; and £P2,500,000 earmarked for railroads and ports. Amended exchange control regulations which went into effect in December 1944 made it possible to transfer interest and capital payments on certain British and Palestine securities to people living outside the sterling area but not resident in Argentina, Canada, Newfoundland, or Switzerland. Similar transfers are permitted for funds hitherto blocked as belonging to foreign nationals who left Palestine for countries outside the sterling area; or belonging to certain categories of persons who technically are enemy

aliens and now live outside the sterling area. On April 26, 1945, an additional tax on the war profits of companies was imposed, and income taxes were raised for local companies and cooperative societies, and for international corporations doing business in Palestine; and on May 15 the government made an issue of bearer war loan bonds carrying an annual interest of one per cent.

Religion.—Jerusalem, the Holy City for Moslems, Jews, and Christians, is the seat of a number of prelates. A Moslem Supreme Council controls the religious affairs (including education) of that faith, and has responsibility for the *Wakfs* (charitable endowments) and for the Sharia courts concerned with matters of personal status. A Jewish Rabbinical Council, headed by two joint chief rabbis (one for the Sephardim, the other for the Ashkenazim), is the principal religious authority of that faith; religious courts responsible to that body have exclusive jurisdiction in certain matters of personal status, and jurisdiction by consent with regard to other nationals (except in matters of divorce). There are three Christian patriarchs—Orthodox, Latin, and Armenian; an apostolic delegate representing the Roman Catholic Church; bishops heading the Coptic and Syrian Orthodox communities; patriarchal vicars at the head of the Greek Catholic, Armenian Catholic, Syrian Catholic, and Maronite (Uniate) communities; an abbot leading the Ethiopian community; and a bishop responsible for the Anglican (Church of England) community.

Education.—There are separate schools, both government and private, for Moslems, Jews, and Christians; education is not compulsory, and it is not universal. In 1942–43, the schools, some providing vocational or secondary education in addition to elementary, were as follows:

Faith		Schools	Pupils
Moslem	government	403	58,325
	private	161	14,567
Jewish	government	488	66,317
	private	297	23,662
Christian	private	181	25,908
Total		1,530	188,779

There were also teacher-training colleges, technical, law, and agricultural schools, and at Jerusalem a Hebrew University (in 1943–44, 560 students attending schools of humanities and science); at Haifa, is the Hebrew Technical Institute (181 students in 1942–43).

Production.—The leading occupation of the people is agriculture, and principally the cultivation of citrus fruit and olives. In the early years of the war, lack of shipping seriously curtailed exports of oranges and grapefruits, but conditions improved in 1943–44 and citrus shipments set a record in the latter year. The British government agreed to purchase 5,000,000 cases of citrus fruit in 1945–46, as well as 100,000 tons of citrus (from which 5,000 tons of citrus concentrates would be produced). Olives, grown mainly for oil production, yielded 9,400 tons in 1942, and barley, 122,000 tons; other crops include durra, corn, potatoes, fresh fruit, legumes and other vegetables. Practically all vegetable seeds, formerly imported, are now grown in Palestine. Rice was grown for the first time in 1943, the yield being 400 tons. Livestock (1943) included 325,376 goats, 244,062 sheep, 242,945 cattle, 107,736 donkeys, 29,736 camels, 19,021 horses, 12,145 hogs, and 4,972 buffaloes. Gypsum of good quality is worked in Galilee, and rock salt in the valley of the Jordan and on the shores of the Dead Sea; the Dead Sea also contains potash, magnesium chloride, common salt, sulphur, bromide, and carnallite. The manufacture of potash and bromine was increased considerably for war purposes, but the figure of production have been kept confidential. Crude petroleum is carried by pipeline across the Arabian desert to Haifa, where more than 3,500,000 tons are refined annually. The cutting and polishing of diamonds was established by the Jews as a new industry in 1938, and by 1945 32 factories were devoted to the enterprise. The largest paint facotry in the Middle East is located at Kfar Atar, on Haifa Bay; this is the only plant in the British Empire, outside Britain, where "red dope," a special paint for aircraft, was manufactured. Newsprint, from scrap paper, is being made north of Tel Aviv, for the first time in the Middle East; and textiles made in Palestine, formerly imported from Europe, have secured markets as far east as India. Sponge fishing is a new industry, and there are numerous plants for the manufacture of foodstuffs, chemicals, and metal goods. The metric system of weights became standard for the whole of Palestine on July 1, 1944.

Foreign Trade.—Excluding petroleum products and Dead Sea chemicals, exports in 1942 had a value of £P3,061,828; they included wearing apparel, polished diamonds, chocolate, edible olive oil, citrus fruits, soap, sulphur, hides and skins, drugs and medicines, biscuits and cakes, and artificial teeth. Imports for consumption were valued at £P19,504,103; they comprised foodstuffs, precious stones, cotton yarn and piece goods, silk and artificial silk yarn, woolen tissues, motor vehicles, and rubber tires.

Communications.—Haifa is the principal port, and in 1944, Tel Aviv secured second place for volume of shipping; other ports are Jaffa, Gaza, and Acre. The railroad system of Palestine provides direct rail connection with Egypt, Transjordan and Syria; the three main sections of the system had a combined length of 328 miles in 1939, and during the war this was much extended. During the conflict, also, the 2,000 miles of highways were much improved and extended.

Principal Events in 1945.—Excavations conducted by the Jewish Palestine Exploration Society in 1945 brought to light several buildings at Beth Yerach, a town on the southwestern shore of the Sea of Galilee dating back to 2400 B.C.; much of the pottery discovered was of types common before the Christian era in Mediterranean countries outside Palestine. At Kuar Atta, near Haifa, the Palestine government's Department of Antiquities discovered in July 1945 a cave containing ossuaries, also of the pre-Christian era; together with the urns, each of which contained three or four skeletons, the excavators found much gold jewelry, and other art objects made of earthenware, ivory, and glass. Earlier finds on the site had been ascribed to the Canaanite, Hellenistic, Roman, and Byzantine periods.

But in most parts of the world the future status of Palestine was exciting more general interest than relics of its past. With defeat of Germany there remained in Europe hundreds of thousands of stateless, homeless Jews whose sole hope for survival lay in emigration, and in the vast majority they wished to go to Palestine. Great Britain, as the mandatory power, found herself on the horns of a dilemma, by the terms of the mandate being required to facilitate Jewish immigration while ensuring, at the same time,

that the rights and position of other sections of the population, predominantly Arab, were not thereby prejudiced. Discovery of a formula which would satisfy the legitimate aspirations of the Jews without infringement upon the established rights of the Arabs was a problem which, in 1945, preoccupied many minds in addition to those of the parties directly concerned.

The Palestinian Arabs, still in a great majority in the country, found staunch support in the newly established Arab League (q.v.) as well as in the member states individually. On March 10, 1945 (it was disclosed by the State Department on October 18), King Ibn Saud wrote to President Roosevelt denying the historical claims of the Jews to Palestine and declaring that formation of a Jewish state in that country would constitute a deadly blow to the Arabs; and in reply, on April 5 the president assured him that no decision would be taken "with respect to the basic situation" in Palestine "without full consultation with both Arabs and Jews." The Arab League, through its London office, demanded of British Prime Minister Clement R. Attlee in August complete stoppage of Jewish immigration and sale of land to Jews. The Arabs declared that Zionist claims received political support in the United States because of desire for the Jewish vote; that the Zionists were using the refugees as a cloak for their political designs in Palestine; and that American support of the Jewish "national home" was an "imperialist desire" to ensure an economic interest in the Middle East, mainly for petroleum, and the belief that a Jewish state, dependent on Anglo-American support, would be the agency for this imperialist policy. Secretary of State James F. Byrnes was also given the Arab point of view in a memorandum handed to him on October 12 by the legations of Egypt, Iraq, Lebanon, and Syria. Warning of "a great misunderstanding of the real issue in Palestine on the part of American public opinion," it stated that "to transform a country that has been non-Jewish for thousands of years, and Arab for 1,300 years, into a Jewish state is an act that obviously cannot be viewed with equanimity by the Arabs"; while the four states declared their readiness to help in solving the problem, "the Arabs [of Palestine] cannot be asked to sacrifice themselves." Maulana Abul Kalam Azad, the Moslem president of the All-India National Congress, declared in September that "Indian opinion is solidly behind the Arabs in Palestine, and we shall greatly resent it if President Truman's proposal [for the continued admission of Jews] is carried out." Both President Roosevelt and President Truman received letters on the Palestine problem from Emir Abdullah Ibn Husein, of Transjordan, who asserted, in October, that the Arabs must be consulted before a final decision was taken; and the Institute of Arab-American Affairs sent a like message to the president. In order that their case may be presented directly to world opinion, on November 22 the leaders of the six Arab parties in Palestine formed a 12-Higher Committee, a subcommittee of which immediately left for Cairo to confer with the Arab League.

The Jewish case for a national home in Palestine was also presented vigorously. In May the Jewish Agency laid before the British government a program which embraced: creation of a Jewish state; settlement of as many Jews as possible and development of Palestine's resources; an international loan and assistance in the transfer of 1,000,000 Jews to Palestine; a reparations levy on Germany to aid in establishment of the Palestinian state; and international facilities for the exit and transit of all Jews wishing to settle in Palestine. In the United States, the Jewish demands received much support from congressmen. Senator Ralph O. Brewster, of Maine, and Representative Emanuel Celler, of New York, jointly sent a letter to President Truman on the eve of his departure for the Potsdam Conference urging his aid in opening Palestine to Jewish immigration and in securing the earliest transformation of that country into a free and democratic commonwealth, and a like stand was taken by the World Zionist Conference, which met in London in August; and on October 23 the American Zionist Emergency Council submitted to the State Department a memorandum calling for clarification of the policy of the United States with respect to Jewish claims. Not all Jews in the United States, however, viewed the problem alike. The American Council for Judaism, while advocating establishment of a democratic form of government in Palestine in which the citizens of all faiths may live together on terms of equality, opposed establishment of a Jewish nation, state, or political entity in Palestine and its nationalist symbols—a Jewish flag, a Jewish anthem, and a Jewish army. Unhappily, while the Arab and Jewish leaders were presenting their irreconcilable claims before the bar of public opinion, numerous outbreaks of violence occurred in both Palestine and neighboring Arab countries. Egyptians in Cairo and, to a lesser extent, in Alexandria rioted against Jewish-owned stores on November 1, 10 persons being killed and hundreds injured; in Tripoli, less than a week later, Jewish inhabitants were attacked by the Arabs, and before the rioting ceased 100 Jews had been killed; and Jewish terrorists in Palestine, who stole weapons on several occasions, precipitated their most serious riot of the year on November 14, fighting in Tel Aviv not ceasing until the troops opened fire.

The United States was vitally concerned in achieving a solution of the Arab-Jewish problem. Every president since Wilson has supported establishment of a Jewish commonwealth in Palestine; the proposal was endorsed by both major parties in the 1944 presidential election; and declarations supporting such a course were adopted in 1945 by both houses of Congress, by 40 state governors, and by the legislatures of 33 states of the Union. The United States government was undoubtedly hampered in pressing for fulfillment of these pledges to the Jews, however, by consideration of the economic and political factors involved, for should conflict with the Arabs ensue the important American petroleum interests in Saudi Arabia might be endangered, and there was a possibility that the Soviet Union might be prevailed upon to espouse the cause of the Arabs. In the summer of 1945, President Truman, who had repudiated the support he had given, as vice president, to proposals for a Palestine Jewish Commonwealth, urged upon Prime Minister Attlee the admission of 100,000 Jews to Palestine, though on October 18, Secretary of State Byrnes warned that final conclusions on proposals that would change the basic situation in that country would not be reached by his government without "full consultation with both Jewish and Arab leaders." Many congressmen were among the supporters of the American League for a Free Palestine, headed by former Senator Guy M. Gillette, which sponsored

an independent, democratic state; but a contrary position was taken by Senator Josiah W. Bailey, of North Carolina, who urged Secretary Byrnes "to keep this country out of the Palestine controversy." The situation in Palestine had grown so tense by October that United States troops were evacuated from the country and American equipment was removed to Egypt.

The British Labour Party, during its election campaign in the summer of 1945, had declared its readiness to support the Palestinian claims of the Jews, and after its return to office in July the Labour government was immediately subjected to pressure to implement its pledge. The request of President Truman on August 31 that 100,000 Jews be admitted to the country was not appreciated, being regarded as advice without responsibility, and it came at a time when the Arab League was insisting upon complete cessation of immigration. While only too anxious to devise some arrangement which would enable the Jews and Arabs to live together in peace, the British government of 1945, heir to the muddleheaded and opportunist policy during the First World War, realized that it could not solve the problem by itself and that international action, unprejudiced by interference from interested parties or individuals, had become essential. First steps to this end were announced after Prime Minister Attlee's visit to Washington, on Nov. 13, 1945, Foreign Secretary Ernest Bevin stating in the House of Commons that an agreement had been reached with the United States for setting up an Anglo-American Committee of Inquiry "to examine the question of European Jewry and to make a further review of the Palestine problem in the light of that examination." The terms of reference were embodied in notes exchanged between the two governments on December 10, and the membership of the 12-man committee was announced as follows: the United States members comprised Judge Joseph C. Hutcheson (of the Fifth Circuit Court, Houston, Texas), Frank Aydelotte (director of the Institute for Advanced Study, Princeton), Frank W. Buxton (editor of the Boston *Herald*), Max Gardner (former governor of North Carolina), James G. McDonald (former High Commissioner of Refugees for the League of Nations), and William Phillips (former ambassador to Italy); Great Britain was represented by Sir John E. Singleton (judge of the King's Bench Division of the High Court of Justice), Wilfred F. Crick (economic adviser to the Midland Bank), Richard H. S. Crossman (Labour member of Parliament), Sir Frederick W. Leggett (deputy secretary of the Ministry of Labour and National Service), Major Reginald E. Manningham-Buller (Conservative member of Parliament), and Lord Morrison of Tottenham (a Labour peer). Judge Hutcheson alternated with Sir John Singleton as chairman of the two-power group under a plan of rotation. The Committee of Inquiry, instructed to report within 120 days of beginning its work, opened hearings in Washington in January 1946, and, having concluded them on January 14, adjourned for further hearings to be conducted in London prior to departure for Palestine.

PALMYRA. An atoll in the North Pacific Ocean, 960 miles southwest of Hawaii, belonging to the United States. It is actually a group of some 50 islets, the largest of which is only six feet above sea level, forming three lagoons, and surrounded by a protecting coral reef. The total area is a little more than 46 acres. The island was discovered Nov. 7, 1802, by Captain Sawle of the American vessel *Palmyra* and since then, until recently, apparently was visited only at rare intervals. According to the records found on the island by a Hawaiian commission in 1862, it was taken possession of for the United States by Dr. G. P. Judd, an agent of the American Guano Company, who visited it in the brig *Josephine* about 1859. In 1862 the Hawaiian government, apparently ignorant at that time of the fact that Dr. Judd had claimed the island for the United States, proclaimed it a Hawaiian possession. Commander Nichols of HMS *Cormorant* claimed the island, then uninhabited, for Great Britain in 1889, but when the United States annexed Hawaii in 1898, it was included with the rest of the group. It was not until 1936 that the United States thought it worth claiming formally by raising a flag there. In 1939 it was selected as the site for one of the new naval air bases to be established by the United States in the Pacific. The naval air station was commissioned in August 1941 and was bombed a few months later by the Japanese. It remained, however, under United States control.

PAN AMERICAN AFFAIRS. The termination of the war ushered in a period of transition for the American republics and brought with it problems of a political and economic character affecting the relations among themselves as well as with states in other parts of the world. Before the downfall of Germany and the surrender of Japan, every one of the American nations had declared war against one or both of the Axis powers, but the internal political situation in Argentina continued to have an unfavorable effect on the solidarity of the American republics and, during 1945, injected itself into the world picture.

At the beginning of the year there was still pending before the governing board of the Pan American Union the Argentine request for a meeting of foreign ministers "to consider the existing situation between the Argentine Republic and other American nations." Because of opposition to participating in a conference with a government which, at the time, had not been recognized by a majority of the other American states, the Inter-American Conference on Problems of War and Peace was convened at Mexico City from February 21 to March 8 without the participation of Argentina.

The Mexico City Conference.—Among the significant conclusions of the conference was the "Act of Chapultepec," a guarantee of the territorial integrity and the political independence and sovereignty of each state by all the other signatory states. It stipulates that an aggression against one shall be considered an attack upon all, whether committed by an American or a non-American state.

The Act of Chapultepec was to be a provisional instrument, to operate only for the duration of the war. To draw up a permanent treaty of reciprocal assistance, the government of Brazil invited the other governments of the American republics to meet in Rio de Janeiro on October 20 in an Inter-American Conference for the Maintenance of Continental Peace and Security. The United States, however, expressed its unwillingness to meet in conference with representatives of the existing Argentine government, and the governing board of the Pan American Union thereupon postponed the meeting until the spring of 1946.

The Mexico City Conference also adopted a

plan of reorganization of the inter-American system. One of the significant changes contemplated by this resolution is a provision that the governing board of the Pan American Union shall be composed of special representatives appointed by the governments, and specifically precludes the appointment of a member of the diplomatic mission accredited to Washington from serving in that capacity.

Although this proposal received a majority vote at Mexico City, it subsequently met with considerable opposition, partly because of a doubt as to the wisdom of the requirement, and partly because of the additional financial burden that such representation would entail. In the preparation of the program of the Rio de Janeiro Conference, therefore, the governing board of the Pan American Union agreed that the governments should further express their views on the matter, and that these views should be transmitted to the conference and to the governments for such action as might be deemed appropriate.

The Argentine question was also considered at Mexico City. As a result of a resolution expressing the hope that the Argentine government would identify itself with the common policy of the American nations and orient its policy so as to achieve its incorporation into the United Nations, Argentina declared war against Germany and Japan and subsequently signed the Final Act of the Mexico City Conference, following which, diplomatic relations were re-established. In October the situation again took a turn for the worse when the United States refused to participate with Argentina in the proposed Rio de Janeiro Conference to draw up a permanent treaty of mutual assistance.

San Francisco Conference.—The Argentine question also arose at the United Nations Conference in San Francisco, and after several sharp exchanges that aroused wide interest, Argentina was admitted to the conference. A more fundamental issue that presented itself at San Francisco, however, was the question of the relation of the inter-American system to the world organization. Among the Latin American delegations there was a strong desire for a maximum degree of autonomy in the settlement of disputes and the preservation of peace in the Western Hemisphere. The charter as finally adopted recognized the right of any group of states to enter into agreements for self-defense and to repel acts of aggression pending action by the Security Council, and placed upon regional agencies primary responsibility for the pacific settlement of disputes.

Economic Relations.—The termination of the war also brought with it serious questions of an economic character for most of the American republics. One of the important conclusions of the Mexico City Conference was an Economic Charter of the Americas, which set forth a series of principles and a number of objectives which the American republics would seek to achieve.

To implement and carry forward these principles and objectives, preparations were made for an Inter-American Economic Conference to meet at the Pan American Union on November 15, but because of an inability to complete the preparatory studies, the conference was postponed to April 1946.

Pending the convocation of the conference, the Inter-American Economic and Social Council was established and began to function at the Pan American Union in November. It is composed of representatives appointed by each of the 21 governments, and is entrusted with the study and formulation of recommendations on economic and social problems affecting the welfare of the American republics. See also INTER-AMERICAN AFFAIRS; WORLD POLITICS.

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PANAMA. A republic in Central America, constituting the narrowest part of the isthmus between North and South America, with an area of 29,072 square miles, exclusive of the Canal Zone. It is bounded on the north by the Caribbean Sea, on the south by the Pacific Ocean, on the west by Costa Rica, and on the east by Colombia. The Caribbean coastline is 477 miles and the Pacific 767 miles. Panama's maximum width is 110 miles. The Canal Zone is a ten-mile strip across the country between Panama City and Colón which, with adjacent drainage areas but omitting the two cities, is under United States jurisdiction. Much of the republic is mountainous, though the elevation where the canal is cut through is only 285 feet. The 1940 census showed a population of 631,637 but a more recent estimate was 635,836. The largest city, the capital, is Panama City (1940 pop., 111,893); other important cities are Colón (44,393), and David (9,222). Racial estimates are 58 per cent mestizo, 17 per cent white, 15 per cent Negro, and 9 per cent Indian. Immigration, aside from that to the Canal Zone, has been limited but heterogeneous. Despite the prevalence of fevers, Panama was an important trading area during the Spanish colonial period. The province, after the collapse of the Spanish empire, remained attached to Colombia, although it attempted to win its independence in the 1840's. Independence finally came Nov. 3, 1903, as a result of the complicated canal politics of the time. Panama's original constitution (1904) was supplanted by a new one in December 1940, but this was suspended late in 1944 and a new constituent assembly met June 15, 1945, to frame another constitution.

Religion and Education.—Roman Catholicism is the predominant religion though Protestant denominations are strong in the Canal Zone. Education is nominally compulsory. Literacy, according to the 1940 census and excluding the Indian population, was 64.7 per cent. Most recent education statistics showed 670 primary schools with 74,039 pupils, 29 intermediate schools with 8,407 pupils, and one university with 857 enrolled. The university was originally the University of Panama but as a result of the action of the inter-American conference of Ministers of Education in 1943 was transformed into the Inter-American University; its financial support and attendance are still primarily Panamanian, however. The government in 1945 began a school construction program, aimed at erecting 400 buildings at a cost of $3,000,000.

Communications.—Railways total 458 miles; the most important is the Panama Railroad (48 miles) connecting Panama City and Colón, owned and operated by the United States government and located in the Canal Zone. The Panamanian government operates a line of 124 miles and the United Fruit Company and a subsidiary have two lines totaling 286 miles. Passable roads total 1,090 miles, including 333 miles of pavement, 352 miles of improved earth, and 405 miles of unimproved road; 162 miles of new road were completed in the biennium 1943–44. Principal highways are the Inter-American Highway, under construction between Panama City and the Costa Rican border, and the Boyd-Roosevelt Highway between Panama City and Colón. The Inter-American

Highway is passable for only a few miles to the east of Panama City; difficult topography in the eastern part of the republic will probably indefinitely postpone its completion to Colombia. Four international airlines serve the republic; Pan American Airways now operates 56 weekly flights between Panama and Guatemala. One local airline operates and two others are being organized. Arriving and departing air passengers in 1944 totaled respectively 39,170 and 41,762. A new national airport, costing from $5,000,000 to $7,000,000, was expected to be completed by May, 1946. In 1939 shipping under the Panamanian flag totaled 718,000 tons but this increased considerably during the war because of transferals to Panamanian registry. Vehicle registration in 1943 (including the Canal Zone) was 16,091 passenger cars, 1,056 busses, and 1,585 trucks. Panama City and Colón in December 1944, had 8,360 telephones. The republic has 33 telegraph offices, 11 radio broadcasting stations and about 26,000 receiving sets, and a total of 134 postal stations.

Production.—Major economic activities are associated with transit of goods through the Canal. Aside from that, agriculture is the chief activity. In 1942 there were about 148,000 agricultural establishments and 227,330 acres under cultivation. Consumption crops include rice, corn, coffee, sugar, tobacco, beans, and tropical fruits, but of those only sugar and coffee are produced in self-sufficient quantities. Bananas and cacao are the traditionally important export crops although much emphasis has recently been put on production of abacá fiber as a wartime substitute for manila hemp. Abacá production in 1944 was 2,726 metric tons but was expected to be doubled within 18 months. Banana production is monopolized by the United Fruit Company which has an area of some 18,700 acres planted with an estimated 5,723,000 bearing trees. Rice production in 1944 was 1,016,680 quintals (quintal = 101.4 pounds) as against 1,356,892 quintals for 1942; no figures were available for 1943. Rubber production for 1944 was 312,402 kilograms. Coffee production for 1945 was estimated at 1,600 metric tons, about 50 per cent above 1944 production. Production of bananas, abacá, and rubber increased in 1944 over that of 1943, although cacao production was down. A comprehensive government agricultural program launched in 1945 was aimed at improving cattle breeds, importing more agricultural machinery, increasing irrigation, augmenting land distribution, and improving agricultural education. Of about a third of a million cattle not more than 10,000 to 13,000 produce milk. Chief forest products are balata, rubber, mahogany, and sarsaparilla. The Rubber Development Corporation began operations in Panama in October 1942, and since then has increased production by more than 13 times. Gold, platinum, copper, and salt, in that order, are the most valuable minerals, though mineral production is relatively unimportant. Industrial activity is limited and is mainly for local consumption; chief items are furniture, shoes, leather products, soap, straw hats, macaroni, building tiles, and liquors. The national brewery is the largest industrial enterprise in the republic. A cement factory, capitalized at $1,500,000 was being organized in 1945. A large electrification program is also under study.

Finances.—The monetary unit is the balboa, equivalent to the U.S. dollar; the principal circulating medium is United States paper money and coin. There are no exchange controls. Total revenues for 1944 were $27,198,000; expenditures were $25,039,600. The treasury balance Jan. 1, 1945, exceeded $8,000,000. Largest sources of income were customs, internal revenue, and the national lottery, the three totaling more than 80 per cent of 1944 revenues. Chief percentage expenditures in 1944 were: health and public works, 39.7; government and justice, 17.2; education, 13. Private individual banking deposits Jan. 1, 1945, were $66,099,708 as against $52,993,669 a year earlier. Total bank assets March 31, 1945, were $117,172,375 as against $99,819,210 a year earlier.

Foreign Trade.—Total 1943 imports were $40,268,000 ($63.71 per capita); total 1943 exports were $1,971,000 ($3.12 per capita). Imports from the United States in 1943 were $40,015,000 and exports to the United States $1,457,000. Total imports in 1944 were $38,000,000 (66 per cent from the United States) and total exports $2,809,892. Exports in 1944 saw increases in bananas and abacá but a decrease in cocoa from 2,789 metric tons in 1943 to 1,455 tons. Rubber exports in 1944 were 348,720 kilograms, an increase of 12 per cent over 1943 exports. Cacao exports in 1944 were valued at $263,428 as against $402,460 in 1943. Exports in the first quarter of 1945 increased, chiefly due to larger abacá and banana shipments; abacá exports in that period were 897 metric tons against 339 tons in the first quarter of 1944; banana shipments totaled 441,559 stems (valued at $351,514) as against none in the first quarter of 1944. Rubber exports in the first quarter of 1945 decreased to 208,276 pounds from 228,967 in the corresponding period of 1944.

Principal Events.—Political conditions were highly disturbed at the beginning of 1945. Provisional President Ricardo Adolfo de la Guardia was meeting an increasing amount of political opposition. Suspension of the constitution late in 1944 caused 14 congressmen to flee to the Canal Zone, where they were later joined by others in organizing a "government-in-exile" and choosing Jephtha B. Duncan as "first designate" to the presidency. Duncan on February 16 took an oath as "acting President" of Panama, claiming that de la Guardia had vacated the office by unconstitutional acts. In the meantime, de la Guardia had reorganized his cabinet and taken steps toward election of a constituent assembly to draft a new constitution. By March 9 the last of the rebellious assemblymen had either returned to Panama or flown to Costa Rica. Elections were held May 6 for the constituent assembly and two days later the government claimed a majority victory for its six-party coalition. The assembly met June 15, received de la Guardia's resignation as provisional president, and elected Enrique A. Jiménez, former ambassador to the United States, to succeed him. It then proceeded with the drafting of a constitution, basing its work on a preliminary draft published by a government commission in February. Ex-President Arnulfo Arias, exiled since the coup overthrowing him in 1941, still claimed from Buenos Aires to be the legal president, but was unable to return to Panama. Diplomatic relations with Spain were broken June 30.

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PANAMA CANAL ZONE. A territorial possession of the United States, occupying a strip 10 miles wide across the Isthmus of Panama, with a total land and water area of 552.8 square miles (exclusive of the water area within the 3-mile

limit from the Atlantic and Pacific ends); total civilian population (census of June 30, 1941), 42,346, of which number 15,434 were Americans. Principal Canal Zone cities, with their 1940 populations exclusive of military personnel are Silver City, 4,583; La Boca, 4,035; Balboa, seat of administration, 3,922; Gatun, 2,477. No land in the zone is privately owned; it is, in effect, a government-owned reservation, given over to the operation, maintenance, and protection of the canal and its installations. In September 1939, the canal and the zone were placed under the control of the United States Army, and in January 1942, United States naval control was established over the Gulf of Panama and the maritime approaches to Cristobal, American town which is geographically almost one with the Panamanian city of Colón, but politically a separate city under United States jurisdiction. Colón and Panama City, which also adjoins the Canal Zone, have United States health and sanitation supervision.

Chief Canal Zone Officers, 1945.—Governor, Maj. Gen. J. C. Mehaffey, United States Army (appointed by the president of the United States to serve a four-year term ending in 1948; took the oath of office on May 16, 1944); engineer of maintenance (acts as governor during the governor's absence), Brig. Gen. Francis K. Newcomer, United States Army.

Judiciary.—The highest tribunal, the United States District Court for the District of the Canal Zone, is headed by Chief Justice Bunk Gardner; the Honorable Daniel E. McGrath is United States District Attorney.

Education.—Public elementary schools (last school year reported, 1943–44), 16; teachers, 122; pupils, 4,170; average yearly salary of elementary school teachers, $1,779. Public junior high schools, 7; teachers, 62; students, 1,485. Public senior high schools, 2; teachers, 38; students, 834; average yearly salary of junior and senior high school teachers, $2,100. Education courses are available for Negro students at La Boca Normal Training High School, which in 1943–44 had an enrollment of 65. The Canal Zone Junior College receives federal aid. Total federal appropriation for education and for the operation of public playgrounds for the fiscal year 1943–44, $873,180. Superintendent of Schools, Ben M. Williams.

Finances.—The following figures were supplied by Arnold Bruckner, comptroller of the Panama Canal Zone:

Balance in treasury, beginning of fiscal year 1944–45	$33,290,483.23
Receipts, 1944–45	55,757,666.44
Total	$89,048,149.67
Disbursements, 1944–45	58,053,328.08
Balance, beginning of fiscal year 1945–46	$30,994,821.59

PAPER PRODUCTION. The year 1945 was an eventful one in the paper and paperboard industry. Historically it should be divided into two equal parts. The first half was characterized by a great shortage of paper and paperboard extending through practically all grades, while beginning roughly with the end of June the shortages began to be eased. The turning point was the surrender of Germany, which eased the military situation and with it the military demands upon the industry. As a result of the surrender, the Skagerrak was opened and the first shipment of Swedish pulp arrived in the United States toward the end of June. As a result also of the defeat of Germany, the flow of munitions and supplies to the European theater slowed. Thus the army was able to cut back its requirements of dissolving pulp for smokeless powder, freeing that pulp capacity to the production of paper grades of pulp. Other orders for supplies were cut back by the armed forces and the resulting diversion of paper to civilian uses was appreciable.

Probably the greatest relief, however, came from the opening up of the Scandinavian countries to the world markets. These countries before the war had, with Germany, been the greatest supply source of pulp and certain paper grades for England and Western Europe, not to mention South America and many Near Eastern and Far Eastern countries. With Germany and Scandinavia both blockaded after the spring of 1940, in order to maintain the war economy it had been necessary for this country and Canada to supply at least a minimum quantity of pulp and paper to those markets to which we had access. With Scandinavia back in the supply picture it would save both shipping space and available North American supplies if European markets were to return to their normal European supply sources. Exports of Canadian and United States pulp and paper to those markets were cut back thus permitting an increase in the current domestic supply in this country. The confusion which reigned in the economies of many countries has prevented any sudden shift, but the shifts are gradually developing and the movements are taking place at the present time (October 1).

The surrender of Japan in August came sooner than many had expected. It has tended to accelerate the readjustment to peacetime conditions. Many war contracts requiring packing materials and other papers have been canceled. Expenditure of munitions has practically stopped. Lend-lease has been canceled and exports have dropped. The armed forces are demobilizing and returning to civilian life thus returning the supply problem for these men and women to the normal civilian channels. The result is that with government demands decreasing, the pulp supply increasing, export and civilian demands resuming their more normal relationships, the WPB felt justified in revoking between August 21 and September 30 practically the entire wartime paper control system which had been so carefully built up.

The paper supply remained tight throughout the last three months of 1945. Manufacturing conditions felt the influence of the cataclysmic events of the past year. During the winter months storms greatly hindered production and transportation of pulpwood, the basic raw material for the industry. The waste paper drives were pushed, especially among school children who responded nobly to the wartime appeals. Collections were running at the rate of one million tons more annually than had been considered normal. With the surrender of Japan, the wartime appeal was dropped and the WPB Salvage Division was discontinued September 30. Many prisoners of war (mostly German) had been used effectively in cutting pulpwood but with the close of hostilities these are being returned home. In the South prisoners were responsible for producing about 35 per cent of the pulpwood, so that the problem of transition to free labor became one of major consequence to the industry.

The rather sudden transition from a condition of 25 per cent curtailment of consumption to a comparatively free supply and demand basis does not necessarily indicate that there is to be paper available for all demands. As the price factor is

still controlled in the supply and demand relationship, there is still a measure of production control exercised through the medium of price control. Thus the changes in supply are slow and demand still (October 1) remained heavily in excess of supply. Indications are that total production of paper and paperboard will not quite equal the record of 1941.

The war record of the paper industry is one of accomplishment in which the industry may well take pride. It has been officially commended by the War Production Board for its co-operation and for its accomplishments. The following production record is impressive:

	Pulpwood consumption (Thousand cords)	Wood pulp production (Short tons)	Paper and paperboard production (Short tons)
1938	9,194	5,933,560	11,380,814
1939	10,816	6,993,334	13,509,642
1940	13,743	8,959,559	14,483,709
1941	16,580	10,375,422	17,762,365
1942	17,275	10,783,430	17,083,862
1943	15,645	9,680,462	17,035,688
1944	16,754	10,108,443	17,182,804
1945 est.	16,900	10,150,000	17,320,000

LOUIS T. STEVENSON,
American Paper and Pulp Association.

PAPUA, Territory of. Administered by Australia, Papua has area of 90,540 square miles. It comprises the southeastern part of the island of New Guinea (87,786 square miles) and the Trobriand, Woodlark, D'Entrecasteaux and Louisiade groups of islands (2,754 square miles); the white population numbered (1941) 3,070, and natives were estimated to number 337,000. The capital is Port Moresby (white population of 800 in 1941). An administrator (H. L. Murray appointed Feb. 4, 1941) was assisted by executive and legislative councils, the members of which were officials and nominated unofficials. Revenue in 1941 amounted to £189,518, and expenditure to £189,297; an annual subsidy provided by the Australian government amounted to £42,500 for 1940–41. Japanese forces which invaded the country from North Eastern New Guinea (see NEW GUINEA, TERRITORY OF) early in 1942 were expelled by American and Australian troops before the year closed. The administrations of the Territory of New Guinea and Papua were amalgamated in 1945.

Of the 63,000 acres under cultivation in 1941, 44,583 were planted in coconuts and 18,262 acres in rubber. By 1944 the majority of the copra and rubber plantations either had been restored to their owners or were being operated by the New Guinea Production Control Board, which body was also active in the Territory of New Guinea. Whereas prewar rubber production in the two countries had averaged 1,200 tons a year, through intensive tapping, the record rubber yield of 1,621 tons was secured in 1944. Similarly copra produced at June 30, 1944, totaled 6,739 tons; on the basis of the area worked, this output compared more than favorably with peacetime production, when exports from the two reconquered Pacific territories averaged 80,000 tons per year. Other agricultural and forest products of Papua included bamboo, bananas, breadfruit, cacao, cotton, ginger, hemp, kapok, nutmeg, sago, spices, sugar, and vanilla. Gold is the principal mineral mined; the output in 1940–41 was valued at £133,341. Numerous other metals include copper, galena, cinnabar, graphite, sulphur, and lignite. Petroleum in marketable quantities has been located over a wide area. The indenture system of labor recruiting has been abandoned, and the rates of pay, feeding, housing, and medical care of native laborers have been improved. Exports in 1940–41 (principally copra, gold, rubber, and dessicated coconut) were valued at £492,775, and imports amounted to £539,152. A road was constructed during 1943–44 to connect Port Moresby with Salamaua, in North Eastern New Guinea, and telephonic and telegraphic communications between those towns was later established. See also NEW GUINEA.

PARAGUAY. The second smallest in area and the smallest in population of the South American republics. It is one of the two land-locked South American countries, being entirely surrounded by Brazil, Argentina, and Bolivia. The Paraguay River, an affluent of the Paraná, divides the country into well recognized portions, Paraguay "proper" to the east, and the Paraguayan part of the Chaco Boreal to the west. The estimated area is 149,807 square miles of which 88,803 are in the Chaco and 61,004 east of the river. The northwestern boundary, dividing the Chaco region with Bolivia, was settled by treaty in October 1938. Population was officially estimated Jan. 1, 1944, at 1,108,040 of whom 1,056,139 were in eastern Paraguay and 51,901 in the Chaco. The principal concentration of population is along the rivers and in the area served by the railroad from Asunción to Encarnación. It is estimated that 97 per cent of the population is mestizo. Immigration, principally European, has been small but economically powerful since 1870; in recent years Polish immigrants have been most numerous. Foreign-born persons are estimated at about 50,000. Chief cities are the capital, Asunción (pop. est., Jan. 1, 1944, 126,280), Villarrica (30,176), Concepción (16,007), and Encarnación (15,610). It is estimated that 17 per cent of Paraguay's entire population lives within a radius of 20 miles of Asunción.

Paraguay was settled in 1535 by the Spanish and during most of the 16th century Asunción was a more important colonial settlement than Buenos Aires. The country became independent by a peaceful revolution in 1811 but soon fell under the strict dictatorship of Dr. José Francia. He was succeeded by two other dictators, Carlos Antonio López and Francisco Solano López, who ruled in succession until 1870. The population was almost wiped out by the disastrous war with Argentina, Brazil, and Uruguay from 1865 to 1870. Gen. Higinio Morínigo became provisional president on Sept. 8, 1940, following the death of President Estigarribia in an airplane accident. Morínigo's term was extended for five years by plebiscite of Feb. 15, 1943. The present constitution, dated July 10, 1940 (ratified August 4), provides for a directly-elected president with a five-year term, a unicameral congress elected on a population basis, and a judiciary headed by a supreme court; elections for the house of representatives have not been called since promulgation of the new constitution.

Religion and Education.—Roman Catholicism is the predominant faith, but freedom of worship prevails. The country has one archbishopric and two bishoprics. Education is free and theoretically compulsory but attendance is poorly enforced. The most recent education statistics showed 2,096 primary schools with 168,465 pupils, 24 intermediate schools with approximately 6,000 pupils, and one university with 1,108 enrolled.

Communications.—Paraguay has 305 miles of railway, in addition to several short, narrow-

gauge, privately owned lines. Annual traffic for the last five years has averaged 1,512,000 passengers and 321,000 tons of freight. The principal rail connection is from Asunción to Buenos Aires via Encarnación. Roads total 4,122 miles but of these only 375 miles are of gravel and 50 miles of macadam. Both Argentina and Brazil are now interested in the extension of rail and road arteries into Paraguay. One national and four foreign (Argentine, United States, and Brazilian) air lines operate. River transportation is important: the Paraguay River is usually navigable by ships of 12-foot draft to Asunción and by those of six-foot draft to Corumbá, Brazil; the Paraguay-Paraná system carries about 350,000 metric tons of freight annually. Vehicle registration in 1943 included 922 passenger cars, 313 busses, and 626 trucks. The country has 3,927 miles of telephone line with 3,905 subscribers. A total of 128 telegraph offices maintains 2,385 miles of line. There are 170 post offices.

Production.—The Chaco is composed of vast stretches of grassland, some timber areas, and extensive swamps. It produces the major part of Paraguay's important quebracho extract and some cattle and cotton. The eastern portion contains large heavily wooded sections and in addition to logging is important for yerba maté (Paraguayan tea), oranges, tobacco, cotton, and cattle. Corn, mandioca (manioc), and beef are staple food products, though large quantities of such foodstuffs as butter, flour, wheat, potatoes, and fruits are imported from Argentina. Weather and transportation difficulties appeared likely to limit 1945 cotton production to one crop instead of the usual two; heavy frosts in June 1945, seriously damaged all crops except wheat. Cotton, an important cash crop, totaled 46,500 metric tons in 1943–44 but would amount to only an estimated 27,000 metric tons in the following crop year. Sugar production, all consumed locally, usually amounts to 14,000 to 16,000 metric tons annually. The 1945 rice crop was expected to be slightly less than in 1944. Yerba maté production in 1944 was 16,657 metric tons as against 16,468 in 1943. A recent livestock census showed 2,729,000 cattle, 116,000 horses, 106,000 sheep, 21,700 hogs, and 3,500 goats. Hide and skin production usually averages almost 400,000 units annually. Cattle slaughtered in 1944 numbered 513,200. Chaco quebracho stands normally provide about 20 per cent of the world's natural tannin supply. Eastern Paraguay has enormous but little exploited stands of hardwoods. The bitter orange tree is a source of important quantities of petit-grain oil. Mineral deposits are known to exist but are undeveloped. Chief items of the small-scale industrial production are soft drinks, beer, ice, matches, textiles, shoes, leather goods, soap, oils, and processed tobacco.

Finances.—Depreciation of the former paper peso became so great (333 to the dollar in 1942–43) that a new unit, the guaraní, was instituted Nov. 8, 1943; its present value is about 32.4 cents. The government instituted important banking reforms early in 1945. Ordinary income in 1944 amounted to 20,500,000 guaranis and expenditures to G22,100,000; there was thus a deficit of G1,600,000, but expenditures of G2,200,000 on 1943 budget items approved, but not liquidated, raised the total deficit to G3,800,000. Two treasury bond issues were approved early in 1945 to finance the 1945 public works program and to repay budgetary deficits; they were respectively G2,400,000 and G3,000,000. Gold holdings of the Bank of Paraguay on June 30, 1945, were G3,300,000; foreign exchange holdings on the same date, G27,000,000; bank obligations, G8,300,000; net reserves, G18,600,000; money in circulation, G28,600,000; total money issued, G44,300,000.

Foreign Trade.—Imports in 1944 were valued at G38,100,000 and exports at G42,300,000. This export excess of G4,200,000 (or 11 per cent) reversed the usual situation and was due to an increase of exports by 19 per cent over those of 1943, while 1944 imports increased only 3 per cent over 1943 imports. Imports in the first quarter of 1945 were valued at G13,556,000 and exports at G13,669,000. Trade for 1943 in dollars was: imports, $11,784,000 ($11.33 per capita); exports, $11,331,000 ($10.89 per capita). Imports from the United States in that year were $1,885,000 and exports to the United States $3,458,000. Most trade is with Argentina. Chief items of import, in order of value, are usually cotton and manufactures, foodstuffs, and metals and jewelry; chief exports by value are normally canned corned beef, quebracho extract, cotton fiber, and salted cattle hides. Importation of 80,000 head of Argentine cattle was expected in 1945.

Principal Events.—The government suspended for several days, beginning Jan. 3, 1945, all Paraguayan services of the Associated Press for alleged misquotation of a speech by President Morínigo; more stringent press regulations were put into effect January 12. Reports of a general strike circulated late in January, the president dissolved all labor unions February 21, and confused rumors of labor repression seeped out of Paraguay in June; all this seemed to add up to a continued dictatorship and strong influence by a reactionary military group. The government on Oct. 10, 1944, signed an important agreement with the Union Oil Company of California granting it exclusive exploratory rights in the Chaco Territory for ten years beginning Jan. 1, 1945, and requiring it to begin drilling within 18 months. Early in 1945 the government took steps to implement its agricultural program by decentralizing the technical services of the Office of Agriculture by establishing five new regional offices. The government by decree of Feb. 24, 1945, fell in line with contemporary changes in Argentina and Uruguay by changing vehicle operation from left-side to right-side driving. The Cabinet on February 7, in anticipation of the imminent inter-American conference at Mexico City, approved a declaration of war against the Axis powers. One week later Paraguay signed the United Nations pact. A decree of March 23 subjected enemy aliens to government regulation and on May 23 the important Banco Germánico was ordered into liquidation. On recommendation of the Committee for Political Defense (Montevideo), the government forbade Axis nationals to enter or leave the country. The government on June 28 seized the German legation archives for delivery to United Nations representatives and the following day ordered all German and Japanese nationals to register with the police. A state merchant marine, capitalized at G20,000,000, was established by decree June 27.

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PARKS, National. See CANADA'S NATIONAL PARKS; NATIONAL PARK SERVICE.

PARTRIDGE, SIR Bernard, English cartoonist and illustrator: b. London, Oct. 11, 1861; d. there,

Aug. 9, 1945. Principal cartoonist of *Punch* since 1910, Sir Bernard was one of the world's foremost political cartoonists, depicting the stirring events of the world since the time of Queen Victoria. His work was conservative in form and exact and realistic in detail. The son of Richard Partridge, professor of anatomy to the Royal Academy, and nephew of John Partridge, portrait painter extraordinary to Queen Victoria, Sir Bernard attended Stonyhurst College and for a time was interested in the stage, appearing as Sergius in the first London production of George Bernard Shaw's *Arms and the Man*. From 1880 to 1884 he devoted himself to stained-glass designing and decorative painting, after which he began his press and book illustration work which he continued until his death. He joined the staff of *Punch* in 1891, and began doing political cartooning in 1910, continuing his work until the spring of 1945. He was knighted in 1925.

PATCH, Alexander McCarrell, Jr., United States Army officer: b. Fort Huachucua, Ariz., Nov. 23, 1889; d. San Antonio, Texas, Nov. 21, 1945. Lieutenant General Patch commanded the American Seventh Army for the final Allied assault on Nazi Europe, his troops, with those of French General Delattre de Tassigny, landing in invasion force on the French Mediterranean coast on Aug. 15, 1944. Said *Life* magazine of the American Seventh and its commander (shortly before Germany's capitulation), "Like all the rest of the armies, the Seventh reflects the characteristics of its leader. Patch, like Hodges (of the American First), is modest, scholarly, unspectacular. He is a classic specimen of the U.S. regular army officer. His army is a classic specimen of a standard, effective U.S. army." General Patch returned to the United States in July 1945 to command the United States Fourth Army, charged with preparing it for combat in the Pacific theater. On Oct. 8, 1945, the war against Japan at an end, General Patch was appointed to head a special board to study the army's postwar organization.

A West Point graduate (1913), General Patch fought in France with the 1st Infantry Division in the First World War. He held his first combat command of the Second World War in April 1942, when he led American troops co-operating with Free French forces in the occupation of New Caledonia. In December of that year, he commanded American army units landed on Guadalcanal to relieve Vandegrift's marines, and by early February 1943, had eliminated all Japanese resistance on that Pacific island. He left the Pacific theater in May 1943 to head the Fourth Army Corps at Fort Lewis, Washington, and in March 1944, assumed command of the Seventh. He was promoted lieutenant general (temporary) in August 1944, and held the Distinguished Service Medal for his contribution to the Guadalcanal campaign. His son, 24-year-old Capt. Alexander M. Patch, 3d, was killed in combat in France, Oct. 22, 1944. General Patch died of pneumonia, two days before his 56th birthday.

PATENTS. Renewal of interest and activity in the field of invention in the last year of the war was impressively indicated by a considerable increase in the number of applications filed and in the heavier demand for copies of patents. In the fiscal year ended June 30, 1945, there were received in the United States Patent Office 66,037 applications, compared with 54,165 in the preceding twelve months. This total exceeded that of any year since 1940. In the same fiscal period there were filed 18,623 applications for the first registration and for the extension of trademarks, as against 14,403 in 1943–44.

There were issued in the 1944–45 fiscal year 30,535 patents, including 26 for plants; 3,552 for designs and 145 for reissues. This decrease of 1,248 was attributable to the rise in number of applications filed and to a shortage of technical help. On June 30, 1945, there were awaiting action 61,875 applications, that is, more than at the same date of any year since 1930.

Copies of patents sold in 1944–45 totaled 4,302,425. This was 101,590 more than in 1943–44 and 679,685 more than in 1942–43.

As an encouragement of the wider use of patented inventions in the post-war era there was established a register in the Patent Office for the use of those who wish to sell or license their patents to others.

In the fiscal year ended June 30, 1945, the receipts were $4,128,122, an excess of $381,587.23 over those in the preceding twelve months. Expenditures were $5,041,186.58, compared to $4,858,850.79 in 1943–44.

CASPAR W. OOMS,
Commissioner of Patents.

PATTEN, Gilbert George William, American author: b. Corinna, Me., Oct. 25, 1866; d. San Diego, Calif., Jan. 16, 1945. Writing under the pen name of Burt L. Standish, Mr. Patten was the creator of the fabulous Frank Merriwell—frank and merry in nature, well in body and mind—whose athletic prowess and amazing variety of other skills made him the hero of a generation of American boys. For 20 years Patten was one of the most popular and prolific authors in the world, writing an estimated 40,000,000 words in his lifetime.

Starting to write fiction at the age of 17, Patten worked briefly on a newspaper and contributed to juvenile monthly and weekly magazines. The idea for the Merriwell series originated with Ormond W. Smith, publisher of paper-back novels, who selected Patten to write a long series around the character of an athletic, adventurous schoolboy. The stories first appeared in 1896, and continued for 986 consecutive weeks until 1915. This series earned a fortune for Street and Smith, publishers of the *Tip Top Weekly* in which the stories appeared, but even at the height of his popularity, Patten, who always wrote on salary, earned only $150 a week, and never received a cent of royalties. Besides his magazine output in the Merriwell series, Patten wrote 25 cloth-bound novels and 415 paper-covered books. The stories in all forms had a combined circulation of 137,000,000.

PATTERSON, Robert Porter, United States Cabinet official: b. Glen Falls, N.Y., Feb. 12, 1891. On Sept. 18, 1945, Mr. Patterson was designated secretary of war in the Truman Cabinet to succeed Henry L. Stimson. A former judge of the United States Circuit Court of Appeals for the Second Circuit, Mr. Patterson entered the War Department on July 31, 1940, as assistant secretary of war, and in December 1940, was named undersecretary of war, shortly after creation of that office. A graduate of Union College, Schenectady, and Harvard University, he was admitted to the New York bar in 1915, and with the exception of his army service, practiced law in New York City until 1930, when President Herbert Hoover appointed him a judge of the United States District Court, Southern New York District. As a private in the National Guard, Mr. Patterson served several months on the

Mexican border in 1916. In the First World War, he saw action overseas; held the rank of captain, later major; and received the Distinguished Service Cross, the Silver Star, and the Purple Heart. He also holds the Distinguished Service Medal, awarded him in September 1945 for his War Department service under Secretary of War Stimson. As undersecretary, Mr. Patterson supervised the army's $100,000,000,000 procurement program. It is generally agreed that he handled the gigantic task with a high degree of success.

PATTON, George Smith, Jr., United States Army officer: b. San Gabriel, Calif., Nov. 11, 1885; d. Heidelberg, Germany, Dec. 21, 1945. Reputed to have been the wealthiest officer in the United States Army, General Patton was certainly its most colorful officer, its outstanding field commander, and, according to high German Army officers, the one they most feared. Well they might, for he defeated the Nazis every time he was pitted against them. He won his first major victory over them at El Guettar, North Africa, in March 1943; in July of that year he waded ashore from a landing barge to the beachhead at Gela, Sicily, to begin a campaign that, in his own words, "out-blitzed the inventors of Blitzkreig." In just 38 days his Seventh Army and Gen. Sir Bernard L. Montgomery's British Eighth Army completed the conquest of Sicily. However, it was as the leader of the Third Army in a wild 10 months' dash from the Normandy beachhead across France, Belgium, Luxembourg, Germany, Czechoslovakia, and into Austria that established his fame as one of the most brilliant soldiers in American history. He has been accused of recklessness, of using unorthodox tactics, of taking uncalled-for chances. He was guilty on all three charges, but they paid off. He summarized his military creed in a talk to his men before the initial landing in Africa, when he said: "We shall attack and attack until we are exhausted, and then we shall attack again." That was Patton. His idea was to hit the enemy hard, then keep on hitting him, and when he was on the run to keep him running; never give him a chance to halt and reform. War, with him, was a game of chance, and he never hesitated to take chances. Furthermore he knew his men, and apparently he knew the weaknesses of the Germans. If he drove his own army mercilessly, he drove himself equally as hard. He had been one of the army's outstanding cavalrymen, and he used cavalry tactics in driving his spearhead of tanks and armored cars across all sorts of terrain in a dash that has no parallel in all military history. There were times when he was traveling so fast that Supreme Headquarters would lose track of him. His advance units had to be supplied with gasoline, munitions and maps from the air so that they could keep going. In those ten months during which he fought his way across six European countries, the Third Army killed, wounded, or captured 1,811,388 Germans at a cost of 139,646 casualties.

It was inevitable that all sorts of myths should grow up around General Patton. Possessor of a lurid vocabulary, he was known by the nickname of "Old Blood and Guts," which he despised. Nevertheless, it stuck. Many of the tales told about him appear to have been figments of reportorial imagination, notably the one about his leaping ashore on the Normandy beach waving a $1,000 bill and offering to bet that he would beat Field Marshal Montgomery into Berlin. Likewise the one about his swimming the icy Sauer River in January 1945 under machine gun and artillery fire to inspire the men of the Third Army to follow him. The latter, however, does help to emphasize the fact that where General Patton sent his men he, himself, would go. During the war he had at least three narrow escapes from death—once when a German 380-mm. railway gun just missed his headquarters at Nancy, France; again when a shell hit his headquarters and he was out; and another time when a large shell landed within 10 feet of his parked jeep but failed to explode. At least one of the stories told about him appears to have been true: He went into battle with two pearl-handled revolvers carried in holsters on his hips. High-tempered, and given to saying what he thought, he frequently got into trouble; once when he slapped a soldier whom he believed to be a malingerer, though the boy is said actually to have been suffering from battle fatigue; and again when, at the opening of a club for American soldiers in London, he was quoted as having said that the British and American people were destined to rule the world, though Army press relations officers said that what he actually said was that "we British and American, and of course, the Russian, people" are destined to rule. He stirred up another tempest in the teapot when he told a Sunday school class, while at home in June 1945, that its members would be the officers and nurses of the next war. But this was nothing compared with the furor that was stirred up when, in an interview granted American correspondents after his return to Europe, he was quoted as saying with respect to the military government in Bavaria which was under his command, that too much fuss was being made over denazification, and compared the Nazi Party to the losers in an American election. That remark cost him command of the Third Army. He was transferred a few days later to the command of the American Fifteenth Army, a paper organization set up to study the tactical lessons of the war just ended. It must have been a severe blow for him to part with his Third Army, but he took his transfer like the real soldier he was, and no one ever heard him complain.

There was, however, a softer side to General Patton for he, despite his profanity, was a deeply religious man, and also author of two volumes of poetry, which he stipulated were not to be published until after his death.

Though he signed himself George Smith Patton, Jr., General Patton was actually the third in line of his family to bear the name. His grandfather, the first George Smith Patton, was a graduate of the Virginia Military Institute, and served as a colonel in the Confederate Army during the Civil War. General Patton's father, George Smith Patton, 2d, also was graduated from the Virginia Military Institute, then studied law and moved to California, where he amassed a fortune in real estate. General Patton entered V.M.I. at the age of 18, but a year later entered the United States Military Academy from which he was graduated in 1909. Though he is said to have been a poor student, he was rated an outstanding athlete at West Point. He excelled as a sprinter on the track team; was regarded as the best fencer in the army; was an exceptional swimmer, horseman and shot. In 1912 he represented the United States at the Olympic Games in Stockholm, Sweden, and finished fifth, behind four Swedes, in the modern pentathlon among 30 contestants. After graduation he was commissioned 2d lieutenant in the 15th U.S. Cavalry,

and advancing through the grades, reached the rank of lieutenant general in 1943. On April 17, 1945, he was promoted full general (temporary) in recognition of his superb achievements. He was graduated from the Cavalry School in 1913; from the Advanced Equitation Class, Cavalry School, in 1914; was graduated with honors from the Command and General Staff School in 1923, and was graduated from the War College in 1932. After serving as an instructor in weapons at the Cavalry School, 1914–16, he served as aide-de-camp to General John J. Pershing in the Mexican Expedition of 1916–17, and in May of the latter year sailed for England in the same capacity. In November 1917, he was the first man detailed in the Tank Corps of the United States Army. He organized and directed the American Tank Center at Langres, winning the Distinguished Service Medal for his work. But, he wanted action at the front and was assigned to command the 1st, later the 304th, Tank Brigade which distinguished itself during the St. Mihiel offensive in September 1918. Later that fall he was severely wounded during the Meuse-Argonne offensive while charging a pillbox after 40 per cent of the tanks in his command had been put out of commission. His life was saved by Pvt. Joseph T. Angelo of Camden, N.J., who dragged him to safety in a shell hole.

After the First World War he commanded the 304th Tank Brigade at Camp Meade, Maryland; then commanded the 1st squadron of the 3d Cavalry at Fort Meyer, Virginia. In 1923 he was transferred to the General Staff and served thereon until 1927. Thereafter he served in the Office of Chief of Cavalry, 1928–31; as executive office of the 3d Cavalry, 1932–35; again on the General Staff, 1935–37; then after several cavalry commands he was made commanding officer of the 2d Armored Division at Fort Benning in 1940. When the North African invasion was planned, he was given command of the American forces scheduled to land on the Atlantic coast of Morocco, November 1942. He took command of the 2d United States Corps after the American reverse at Kassarine Pass and won the Battle of El Guettar; and disappeared from the public eye soon thereafter only to turn up as commander of the American Seventh Army in the invasion of Sicily. After the Sicilian campaign he again disappeared, and it was rumored that he had fallen into disfavor with General Eisenhower, but what actually had happened was that General Eisenhower had sent him to England to prepare for a key role in the invasion of western Europe.

General Patton's death was due to injuries received in an automobile accident, which occurred December 9 near Mannheim, Germany, when his automobile collided with a truck. His neck was broken, but he rallied in a short while and was thought to be recovering, but after having been put into a plaster cast; he developed a lung congestion followed by paralysis of the chest which made it impossible for him to obtain normal relief by coughing. His condition was not regarded as grave until 24 hours before his death. He was buried in the United States military cemetery at Hamm near Luxembourg, where rest the remains of many of the men who fought under him in the Battle of the Ardennes (Bulge) in December 1944.

PEABODY MUSEUM (Harvard University). Due to the fact that the greater part of its staff continued to serve either in the armed forces or in special research for other government agencies, the research work of the Peabody Museum, which constitutes the larger part of the organization's activities, was drastically curtailed in 1945, according to the annual report of Dr. Donald Scott, the director. Furthermore, the museum, like various other institutions, finds itself in need of funds with which to carry on properly its researches. This, it was stated, is due to a 20 per cent decline in the rate of return upon endowments and to the rising cost of services and supplies. Funds are particularly needed to carry on expeditions and field work upon which members of the museum were engaged before the war.

During the academic year, July 1, 1944, to June 1, 1945, Dr. Hugh O'Neill Hencken brought near completion his reports upon the archaeology of Ireland, based on the results of the Harvard Irish Expedition under his direction. He also made progress with the rearrangement of the museum's European Neolithic, Bronze, and Ice Age collections. Dr. Earnest A. Hooton completed his survey to provide ideal specifications for seats in railway coaches. Recommendations contained in his report have been adopted by a committee on seating appointed by the United States railroads. Mr. Harper Kelley, Thurman Arnold fellow, on leave from his position as curator of paleolithic archaeology in the Musée de Trocadero in Paris, continued his preparation of a volume on the Paleolithic Age in France. He returned to France in order to resume his curatorial position and to complete his book. Dr. John Otis Brew, who was appointed curator of North American archaeology, prepared for publication his report of excavations on Alkali Ridge, Utah, and continued work on the final reports of the museum's expeditions to Awatovi and the Jeddite Valley in northeastern Arizona. Mr. Henry Eliot brought near completion a series of 35 annotated charts which give a graphic analysis of some of the major archaeological sites in Mesopotamia, including the sites of Ur, Kish, Susa, al-'Ubaid, Jemdet Nasr, and several others.

Field Work.—The Ramah project, under Dr. Clyde Kluckhohn's direction, was carried forward by Dr. Janine Chappat, who was in the field from August 1, 1944, to July 1, 1945. In addition to making certain films and routine observations of the Navaho children in Dr. Kluckhohn's study, she laid the groundwork for an investigation of race attitudes in 48 children of three different groups, Navaho, Mormon, and Spanish American, living in this general area. The Rev. Robert McNair also spent a month studying certain aspects of the religious life of the Ramah Navaho. Dr. William H. Kelly spent a month with the Cocopa Indians of the Colorado River delta, carrying forward his intensive study of this primitive group.

Publications.—Six volumes were published by the museum in 1945: *Early Man and Pleistocene Stratigraphy in Southern and Eastern Asia*, by Hallam L. Movius, Jr. (Peabody Museum Papers, vol. 19); *Racial Pre-history in the Southwest and the Hawikuh Zunis*, by Carl C. Seltzer (Peabody Museum Papers, vol. 23); *The Excavation of Los Muertos and Neighboring Ruins in the Salt River Valley, Southern Arizona*, by Emil W. Haury (Peabody Museum Papers, vol. 24); *Archaeology of Northwestern Venezuela*, by Alfred Kidder, 2d (Peabody Museum Papers, vol. 26); *An Introduction to the Archaeology of Cuzco*, by John H. Rowe (Peabody Museum Pa-

pers, vol. 27); and *Archaeological Investigations in El Salvador*, by John M. Longyear, 3d (Peabody Museum Memoirs, vol. 9).

Publications by members of the staff were as follows: *Young Man, You Are Normal*, by Dr. Earnest A. Hooton; *The Relationship Between the Masculine Component and Personality*, and articles in the *American Journal of Physical Anthropology*, by Dr. Carl C. Seltzer; and five publications by Dr. Clyde Kluckhohn, *Dynamic Theory of Personality* (with O. H. Mowrer), *The Influence of Psychiatry on Anthropology in America During the Past One Hundred Years*, *The Concept of Culture* (with William H. Kelly), *Anthropological Research and World Peace*, and *The Personal Document in Anthropological Science*.

Accessions.—A total of 50 accessions, approximating 3,600 specimens, were received, distributed as follows: North America, 19; Central America, 12; South America, 11; Europe, 3; Africa, 4; Asia, 5; Oceania, 3. Of these, 21 were archaeological; 17, ethnological; 2, skeletal material; and 15, photographs and negatives.

PEACHES. Whereas the 1945 apple crop of the United States was but little more than half the normal crop, the 1945 peach crop of the country established a record. According to the Department of Agriculture's October 1 estimate, 81,954,000 bushels of peaches were picked in the United States in 1945 as compared with the 1944 crop of 75,963,000 bushels and the 1934–43 average crop of 57,201,000 bushels. California, as usual, was the leading producing state in 1945. Its crop totaled 31,795,000 bushels compared with its 1944 crop of 34,044,000 bushels and its 10-year average crop of 23,389,000 bushels. Georgia was the second largest producer with 8,091,000 bushels in 1945 against 4,590,000 bushels in 1944 and a 10-year average crop of 4,997,000 bushels. South Carolina held third place with 5,760,000 bushels in 1945, 2,460,000 bushels in 1944, and 2,039,000 bushels as its average 10-year crop.

PEANUTS. On October 1 the Department of Agriculture estimated the 1945 peanut crop of the United States at the record figure of 2,260,050,000 pounds, an increase of about 150,000,000 pound over the 1944 crop which aggregated 2,110,775,000 pounds, and 781,725,000 pounds over the 1934–43 average crop of 1,478,325,000 pounds. Georgia led the producing states in 1945 with an output of 734,300,000 pounds. Texas came next with 398,000,000 pounds; North Carolina was third with 343,200,000 pounds; and Alabama was fourth with 332,050,000.

PEARS. Production of pears in the United States in 1945, according to the Department of Agriculture, reached record proportions with a yield of 32,685,000 bushels, compared with the 1944 crop of 31,956,000 bushels and the 1934–43 average crop of 28,616,000 bushels. California led the producing states with 13,210,000 bushels in 1945 compared with 10,417,000 bushels in 1944 and a 1934–43 average crop of 9,951,000 bushels. After California came Washington with a 1945 crop of 7,982,000 bushels against a 1944 crop of 8,665,000 bushels and a 1934–43 average crop of 6,260,000 bushels. Oregon was third with a 1945 crop of 4,842,000 bushels compared with a 1944 crop of 4,354,000 bushels and a 1934–43 average crop of 3,720,000 bushels.

PECANS. The October 1 estimate of the Department of Agriculture placed the 1945 pecan crop of the United States at 141,533,000 pounds as compared with the 1944 crop of 140,165,000 pounds, and the 1934–43 average crop of 97,346,000 pounds. Georgia jumped from 33,500,000 pounds in 1944 to lead all of the producing states in 1945 with an output of 38,500,000 pounds. Texas, which led in 1944, with 45,000,000 pounds, dropped to 33,750,000 pounds in 1945. Oklahoma was the third largest producer in 1945 with 22,500,000 pounds, while Alabama came fourth with 10,660,000 pounds.

PELLIOT, Paul, French Sinologist: b. 1878; d. Paris, Oct. 29, 1945. One of the world's leading scholars on ancient China, Dr. Pelliot was credited with being the first to apply the techniques of philological and archaeological methods to the study of Chinese sources and history.

Dr. Pelliot originally intended to enter the consular service, but he proved himself such a brilliant linguist that in 1899 he was sent on a scholarship as a language student to the School of Far Eastern Studies at Hanoi in Indo-China. Later he was appointed professor of Chinese at the École des Langues Orientales Vivantes and from 1906–09, he conducted an archaeological expedition in Chinese Turkestan, under the sponsorship of the Geographical Society and the Academy. From this and later expeditions, he brought back to the Louvre thousands of valuable Chinese, Tibetan, Sanskrit and Uigur manuscripts and paintings. He was made a professor at the Collège de France in 1911, and in 1921 he became a member of the Académie des Inscriptions et Belles-Lettres. During the First World War, he served in France and later in the Dardanelles, where he won the Victoria Cross for his heroism in taking command of a British regiment when all of its officers were killed. Later he was sent on diplomatic missions to Peking and Siberia. Dr. Pelliot had visited the United States a number of times to give lectures; his last trip was to attend the Pacific Relations Conference at Hot Springs, Va.

PENANG. See BRITISH MALAYA.

PENDERGAST, Thomas J., American politician: b. St. Joseph, Mo., July 22, 1870; d. Kansas City, Mo., Jan. 26, 1945. Democratic boss of Kansas City for many years, Pendergast was assailed by his opponents as the ruthless leader of a corrupt political machine which violated all the principles of decency and democracy, and hailed by his followers as a friend who never let them down and as a leader with an outstanding record in directing the affairs of government.

After attending St. Mary's College at St. Mary's, Kans., Pendergast went to Kansas City, where he worked in his brother's saloon. Soon he plunged into politics, and in time became a ward captain. He served for a period as deputy marshal. In 1900 he was appointed a street commissioner and thereafter held various offices, including that of city councilman. All the while his political prestige was improving. About 1911 his brother died, and "Big Tom," as the boss was called, took over the liquor business. After making himself the political overlord of the First Ward, "Big Tom" began to extend his influence into the Second Ward. Time and again he was forced to fight to hold his power. His enemies condemned his rule, asserting that gambling, prostitution and crime flourished in his political domain, with his connivance, but nevertheless, he gradually grew stronger and stronger until he developed into the acknowledged boss of all Kansas

City, and also wielded a wide influence in Democratic politics throughout the State of Missouri. He reveled in his bossdom. On one occasion he was quoted as saying: "Yes, sir, you've got to have boss leadership. Now look at me. I'm not bragging when I say I run the show in Kansas City. I am boss. If I was a Republican they would call me a 'leader,' but 'boss' is good enough for me."

As boss, Pendergast continued to run the Democratic Party in Kansas City until his political career came to an inglorious end in 1939, when he was sent to Leavenworth Prison after pleading guilty to a charge of income-tax evasion. He was released after serving a year and a day of a 15-months' sentence, his probation including a provision that he should abstain from politics for five years; but, under his lieutenants, his machine continued to function. However, it was defeated in the local elections in 1940 and again in 1942. Pendergast had been ill with heart trouble most of the time he was in Leavenworth, and he never recovered. Thus passed the most powerful boss the Middle West had known in many years—a boss who was credited with the ability to make or break senators, governors, legislators, judges, and other officials, and who, because of his influence with Missouri's large block of votes, was much sought after and coddled by aspirants for the presidential nomination in Democratic National Conventions.

PENICILLIN. See AGRICULTURAL RESEARCH ADMINISTRATION—*Bureau of Agricultural and Industrial Chemistry;* CHEMISTRY—*Drugs, Insecticides and Agricultural Chemicals;* MEDICINE—*Antibiotics.*

PENNSYLVANIA. Middle Atlantic state, United States; one of the original thirteen states. Population (1940): rural, 3,313,303; urban, 6,586,877; total, 9,900,180. Land area, 45,045 square miles, divided into 67 counties. Principal cities, with 1940 populations: Philadelphia, 1,931,334; Pittsburgh, 671,659; Scranton, 140,404; Erie, 116,955; Reading, 110,568; Allentown, 96,904; Wilkes-Barre, 86,236; Harrisburg, the capital, 83,893; Altoona, 80,214.

Chief State Officers, 1945.—Governor, Edward Martin; lieutenant governor, John C. Bell; secretary of state, C. M. Morrison; treasurer, Ramsey S. Black; auditor general, G. Harold Wagner; attorney general, James H. Duff.

Judiciary.—Chief justice of the state supreme court, George W. Maxey; associate justices, James B. Drew, William B. Linn, Horace Stern, Marion D. Patterson, Allen M. Stearne, Charles Alvin Jones.

Legislature.—The General Assembly (Senate, 50 members; House of Representatives, 208); meets biennially in odd years on the first Tuesday in January.

Education.—Public elementary schools (latest report, 1943–44 school year), 8,526; teachers, 33,888; pupils, 997,982; average yearly salary of elementary school teachers, $1,596. Public senior high schools (1943–44), 80; teachers, 3,688; public junior high schools, 218; teachers, 5,453; public junior-senior high schools, 367; teachers, 7,080; all other public secondary schools, 562; teachers, 7,182; total students in all public high schools, 575,325; median yearly salary of secondary school teachers, $2,073. There are 18 state teachers colleges in Pennsylvania. Total state appropriation for education (1943–44), $71,021,350[1]. Pennsylvania's compulsory school attendance law is effective for children between the ages of eight and seventeen; for children who enter school between six and eight years of age, the law becomes effective on the date of admission.

Finances.—Following is a statement of Pennsylvania's finances for the fiscal year 1944–45, furnished by the state treasurer's office:

Balance in treasury, June 1, 1944	$163,385,378.91
Receipts, 1944–45	698,282,313.45
Total	$861,667,692.36
Disbursements, 1944–45	722,679,446.32
Balance, beginning of fiscal year May 31, 1945	$138,988,246.04[1]

[1] In addition to the cash on hand as of May 31, 1945, the state had invested in short term United States government securities with surplus funds par value of $96,540,000, making total cash and securities (May 31, 1945), $235,528,246.04.

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Preliminary 1945
Corn (1,000 bu.)	54,266	53,580	60,192
Oats (1,000 bu.)	25,296	23,912	25,590
Buckwheat (1,000 bu.)	2,406	2,940	2,460
Wheat (1,000 bu.)	18,249	20,288	20,626
Barley (1,000 bu.)	2,722	2,632	3,230
Rye (1,000 bu.)	1,002	735	744
Hay:			
Alfalfa (1,000 tons)	464	506	584
Clover and timothy (1,000 tons)	2,354	2,425	2,562
Tame (1,000 tons)	3,046	3,216	3,435
Tobacco (1,000 lbs.)	40,353	52,893	52,447
Potatoes (1,000 bu.)	22,318	19,140	17,825
Apples (1,000 bu.)	8,684	9,100	2,730
Peaches (1,000 bu.)	1,601	1,886	1,222
Pears (1,000 bu.)	513	464	126
Grapes (tons)	17,590	19,500	6,800

PENSIONS. See VETERANS' ADMINISTRATION.

PERAK, pā'räk. See BRITISH MALAYA.

PERFORMING RIGHT SOCIETIES. These associations of composers and authors of musical works, and their publishers, exist throughout the world for the protection of performing rights included in music copyrights. With the now general recognition of the principle that the right to license public performance of music is vested in the copyright owner, the societies act as collection agencies for their members who, for this purpose, assign to the societies their performing rights.

Twenty-one such organizations, each representing a country, were grouped in the International Confederation of Performing Right Societies at the outbreak of the Second World War, with headquarters at Lausanne. Thus a worldwide activity was carried on in the issuing of licenses for performing copyright music, the member society in each country representing in that country all affiliated societies and the license issued by each society opening to the licensee the repertoires of all societies.

Chief performing right society of the confederation is the American Society of Composers, Authors and Publishers (ASCAP) which in 1945 was a leader in steps to restore the reciprocity interrupted by the Second World War. During the war, relations continued as usual among the United Nations societies, but worldwide activities were hampered and in some cases altogether halted. With the German occupation, the German society (STAGMA) absorbed the Austrian society (AKM). Much business perforce fell within the scope of the Alien Property Custodians of the various countries.

[1] Figure represents one half the state appropriation for the biennium, 1943–45.

During 1945 the Austrian society was rehabilitated, many new contracts were signed among the member-societies, and there was a definite approach to prewar operations. The German society was being reorganized with officers acceptable to the governments of occupied Germany. Among the important new contracts were those of ASCAP with PRS (England), SACEM (France), SGAE (Spain) and the societies of Argentina, Brazil and Uruguay. As existing contracts among the various members expired, they were being renewed, usually for longer periods than heretofore.

By the end of 1945, most of the 120 members of ASCAP in the armed forces had returned to civilian life. During the year the society had considerably expanded its coverage of the symphonic and concert fields, a task formerly left to individual members. The chief symphony orchestras and many concert halls had been licensed. In the field of television the society took assignments of its members' performing rights to the extent that it supervised the blind radio use of such rights. A special committee of the society continued a study of this new field.

Committees of the society also met with representatives of manufacturers and the makers of sound equipment to formulate a policy for licensing the use of music in industry to succeed ASCAP's wartime $1 per year license. ASCAP already was sharing in substantial collections in England for use of music in industry.

Late in 1945, ASCAP's licensees in all fields approximated 30,000. Its membership was some 1,750 composers and authors and some 250 publishers. Return of peace brought renewals of many licenses suspended during the war period, with increased revenue. The ASCAP main office is at 30 Rockefeller Plaza, New York 20, N. Y., with 22 branches throughout the country. Deems Taylor was re-elected president for the 1945–46 term. John G. Paine is general manager.

DANIEL I. MCNAMARA,
American Society of Composers, Authors and Publishers.

PERLIS. See BRITISH MALAYA.

PERSIA. See IRAN.

PERU. A republic of South America on the Pacific coast between Chile and Ecuador, having an area of 482,258 square miles and a population of 7,395,687, of which about 50 per cent are white, 1 per cent are Negroes and Asiatics, and the remainder are Indians. Conquered in the 16th century by Pizarro, who subjugated the Incas, the country remained under Spanish rule for almost three centuries. Independence was established in 1824 after three years of revolutionary war. According to the constitution the executive authority is vested in a president, elected for six years and ineligible for a consecutive term. Legislative power belongs to a Congress, consisting of a Senate of 40 members and a Chamber of Deputies of 140 members, all elected for 6 years. After the elections of 1936, which were declared void, the Congress voted its own dissolution and conferred dictatorial powers on President Oscar Benavides y Benavides until 1939. He was succeeded on Dec. 8, 1939, by Dr. Manuel Prado y Ugarteche, elected for six years. On June 10, 1945, Dr. Jose Luis Bustamante Rivero, liberal and leftist candidate, was elected president. He assumed office on July 28. For administrative purposes the country is divided into 23 departments. The capital is Lima, (pop. 533,645). Other cities are Callao (84,438), Arequipa (80,487), Cusco (45,230), Iquitos (35,539), Chiclayo (32,646), and Trujillo (41,589).

Religion and Education.—There is religious liberty, but the Roman Catholic religion is protected by the state and is the only religious instruction permitted in schools, state or private. An archbishopric has been located at Lima since 1545. There are 18 bishops and vicars general, 3,837 officials, priests, monks and nuns, and 4,230 churches, chapels, convents, and religious houses. All church property is owned by the state. All marriages must be civil, regardless of religion, and must be preceded by medical examination.

Elementary education is compulsory and free. In 1944 there were 7,647 elementary schools, with 13,084 teachers and about 500,000 pupils. There are 161 religious and state secondary schools with about 22,474 students. Budget appropriations for education in 1944 were 43,007,954 soles. (1 sol = $0.4740 in U.S. money) The Universidad de San Marcos in Lima, founded by Charles V in 1551 is famous. Other state universities are located at Arequipa, Cusco, and Trujillo, and there is a large Catholic University at Lima.

Army and Navy.—There is a universal and compulsory military service, though in peacetimes only a limited number of the annual quota are called for active duty. The authorized establishment of the army in 1940 was over 2,000 officers and over 30,000 other ranks, but there are police and rural guards numbering about 10,000, including civil guards and mounted police. There is a war college at Chorrillos. The navy consists of two cruisers, two destroyers, four submarines, six river gunboats, one depot ship, one transport, and one oiler.

In the 1943 budget 50,000,000 soles were appropriated to the army; 15,000,000 soles to the navy, and 15,500,000 soles to the air force.

Communications.—There are 20,663 miles of national highways of which about one tenth are macadam or concrete. The Central Andean Highway, Lima to Oroya, extends 528 miles and makes possible a land-water journey from the Pacific to the Atlantic Ocean. Motor vehicles in 1943 totaled 27,917, including trucks and buses. Railways total 2,758 miles, of which about 2,000 miles are privately owned and over 600 miles owned by the state. The telegraph, telephone, post, and radio services are government controlled. There are 11,842 miles of telegraph lines, and the telephone instruments total 35,151. A waiting list of approximately 10,000 applicants for telephone services existed in Lima in the summer of 1945. Domestic aviation is intensely developed within the country and international services connect the principal cities with neighboring countries. A total of 56,189 passengers were flown by civil aircraft in Peru during 1944, an increase of 11 per cent over 1943.

Agriculture and Industry.—The country is divided into three distinct regions: the coast strip, west of the Andes, which contains the chief towns and most of the white population; the Sierra, or western slopes of the Andes; and the inward slopes (montaña) and boundless forests of the Amazonian basin. Agricultural pursuits occupy about 80 per cent of the population, chiefly in the coastal region, where 62,400 acres have been irrigated by the government in the past few years. Chief products are cotton, sugar, coffee, wool, hides and skins. The 1945 cotton crop was estimated at 62,100 metric tons, as

compared with the higher 1944 crop of 67,154 metric tons. Sugar output for 1945, it was anticipated, would be somewhat in excess of the 444,000 short tons produced in 1944. The 1944 rice yield was estimated at 83,879 metric tons as compared with the 82,500 ton yield in 1943. Approximately 4,094 metric tons of coffee were produced in 1943. Leaf tobacco production in 1943 was estimated at 1,385 metric tons, about the same amount (1,381 metric tons) having been produced in 1942. Over 2,000,000 pineapples were produced in 1943. Flax production in 1944, after regrading, was 1,300 tons of fiber and 2,000 tons of tow, as compared with 1,248 tons of fiber and 3,000 tons of tow produced in 1943. Peruvian production of cattle hides totaled 127,570 pieces during the first half of 1945, compared with 132,369 pieces in the same period of 1944.

According to the United States *Foreign Commerce Weekly* (April 1, 1944) "Peru's textile industry comprises some 5 cotton spinning mills, 10 cotton weaving mills, 7 woolen mills, 10 hosiery and knitting mills, and 7 rayon plants. Capacity operations were reported by all except those using imported rayon yarn. Peruvian cotton delivered to mills reportedly reached an all-time high in 1943, or nearly 250,000 quintals, compared with 246,000 in 1942 and 210,000 in 1941. . . . Approximately 8,000,000 sheep are shorn annually in Peru. The 1943 wool yield was estimated at 8,000 metric tons, compared with 7,700 tons in 1942. Domestic woolen mills, which operated at full capacity in 1943 . . . are estimated to have consumed 3,220 metric tons."

Mineral resources are found principally in the mountainous sections and are exploited chiefly by foreigners. Copper output in 1943 was 33,407 metric tons as compared with 35,332 tons in 1942. In 1943, 32,285 metric tons of zinc were produced, a little less than the 32,691 tons produced in 1942. Lead production in 1943 was 47,810 metric tons, as compared with 44,881 tons in 1942. The coal produced in 1943 amounted to 22,716 metric tons of anthracite and 164,280 tons of bituminous. Crude petroleum to the amount of 1,946,524 metric tons was produced in 1944, as compared with 2,058,651 metric tons in 1943. Other mineral resources include silver, gold, bismuth, vanadium, antimony, and iron.

Silk culture is being developed, and the eastern slopes of the Andes are well adapted to stock raising. Alpaca, sheep, and llama wool are exported. There are guano deposits in Huanillos, Punta Lobos, and other adjacent islands which had an output of 126,545 metric tons in 1940.

Finance.—Revenue in 1945 was estimated at 546,546,666 soles, and expenditures at the same amount, as compared with revenue and expenditures balanced at 459,619,000 soles in 1944. The budget for 1945 included 20,101,709 soles for public works and 109,123,162 soles for commerce; 58,834,648 soles for education; 64,383,014 soles for war; 20,719,472 soles for the navy, 28,642,910 soles for aviation, and 68,235,522 soles for government and police. The total debt of Peru, as of Dec. 31, 1943, amounted to 1,232,402,212 soles.

Foreign Trade.—Exports from Peru for the first 5 months of 1945 totaled 246,000,000 soles in value and 770,000 metric tons in quantity. These figures were well above the January-May 1944 export total of 214,000,000 soles, but tonnage was only 748,000 for the same period in 1944. Imports valued at 195,800,000 soles also were substantially greater than the figure for the corresponding period of 1944, which was 175,700,000. The quantity of imports was 182,000 tons or the same as the figure for the same period in 1944.

Although Peru sells more abroad than she buys, by almost 25 per cent, this balance of trade is "favorable" in name only, Peruvians point out, since profits on the bulk of exports go to foreign companies—largely British and United States—who own mines, oil wells, and sugar and cotton plantations as well as railroads and utilities.

In 1945 the value of imports was above that for any of the previous 15 years, while the trend in tonnage continued downward. Consequently Peru had a favorable balance of trade of 5,000,000 soles at the end of May compared with 38,000,000 soles on the corresponding date in 1944.

Principal Events.—Approximately 1,500 persons perished in a flood on January 17 in the town of Chavin, when a wave of water 150 feet high washed down the Mosna River in consequence of the breaking of a dike in a lagoon above the town. Heavy rains had preceded the catastrophe. The town was left buried under silt and rocks. On February 12, Lima reported that Peru considered itself at war with Germany and Japan; and on February 17, ambassadors of Peru and Ecuador signed an agreement in Rio de Janeiro, Brazil, ending a 150-year-old boundary dispute between the two nations. Marshal Oscar Benavides, former president of Peru, died on July 1 at Lima. It was reported on July 5 from Quito, capital of Ecuador, that troops of the latter country had formally occupied the river port and area of Vargas Guerra, following evacuation by Peru, in accordance with the terms of the agreement signed by the two nations earlier in the year. A quiet but tense presidential election campaign preceded elections held on June 10, and on July 22 the National Electoral Board proclaimed Dr. Jose Luis Bustamante Rivero, liberal and leftist candidate, president of the republic. Dr. Rivera, who scored an overwhelming victory, was backed by the *Frente Democratico* (Democratic Front), a coalition of heterogeneous liberal forces formed by the Apristas (members of the former APRA, since renamed *Partido del Pueblo,* or People's Party, by its leader, Victor Raul Haya de la Torre) and by the Communists, despite the fact that the latter had been excluded from the coalition by the Apristas. The unsuccessful candidate, Gen. Eloy Ureta, was favored by conservatives generally, by some liberals, and by the openly pro-Fascist Union Revolucionaria. The liberal victory in the election resulted in the establishment in Peru, for the first time, of a free press and of civil rights generally, and constituted a significant breach with repressive traditions of the past. The Peruvian Chamber of Deputies on August 6 approved a resolution urging the government to break relations with Spain until such time as free institutions are restored there, and another resolution was passed recommending the establishment of diplomatic and commercial relations with the Soviet Union. Productive activity in Peru during the first half of the year continued at the high level of 1944 in most industries, and foreign trade was at a record high level. Credit expanded, prices continued to advance, and there was an inflationary tendency. It was expected that agricultural production would continue on the same level as in 1944, and that Peru in 1945 would depend on outside sources for much wheat, flour, meat, lard, and fruits. Building activity remained active. The index of the cost of

living was 202 for June (1934–36 = 100), showing an increase of 9 points since January.

PESCADORES. A group of 49 small islands off the Chinese seaport of Amoy, 30 miles west of Formosa, called by the Chinese, Peng Hu; the Japanese knew them as Hoko Gunto. The total area of the group is 49 square miles, and the population numbers 70,000. Fishing is the chief occupation of the inhabitants. The Japanese constructed a formidable naval base at Mako (Makung Harbor), on Penghu, largest of the islands.

The Pescadores were ceded to Japan by China, following the Sino-Japanese war of 1894, by the Treaty of Shimonoseki, April 17, 1895. They were mentioned in the declaration following the Cairo Conference of November 1943 among the "stolen" territories to be returned by Japan to China. The naval base of Mako was raided by United States bombers from China on Aug. 15, 1944, and by carrier-based planes on October 12; and during the early months of 1945 attacks were continued from American bases in the Philippines. The Pescadores returned to Chinese sovereignty in September 1945 with the capitulation of the Japanese on Formosa, of which the group was an administrative dependency.

PETAIN, Henri Philippe, French soldier and head of the French state, June 1940–August 1944: b. Cauchy la Tour, Pas-de-Calais, May 24, 1856. On Aug. 15, 1945, 89-year-old Marshal Pétain, head of the Vichy government during the German occupation of France, was convicted of treason and intelligence with the enemy, and sentenced to death, with a recommendation by the jury that the sentence be commuted to life imprisonment because of his great age. Two days later, the jury's recommendation was carried out by Gen. Charles de Gaulle.

French ambassador to Spain from early 1939 to May 1940, Marshal Pétain was called to Paris to act as minister of state and vice president of the government council. On June 16, he replaced Paul Reynaud as premier, and on June 22, despite the opposition of those Cabinet members who wanted to continue prosecution of the war against Germany, he signed an armistice with the Nazis. On July 2, he moved his government's headquarters to Vichy. Thereafter, he followed, for the most part, German dictates as to his country's administration. In April 1942, Pétain reinstated Pierre Laval, whom he had ousted as vice premier in 1940, and in mid-November, gave Laval authority to make laws and issue decrees. After the North African invasion in that same month, he broke off relations with the United States government.

On Aug. 21, 1944, Marshal Pétain left Vichy under German escort. In a message to the French people, he declared that he had been compelled by the Germans to leave France. Kept in Belfort, in eastern France, for a few weeks, he was transferred to a small resort in southern Germany. In April 1945, he entered Switzerland with the intention of crossing that country and surrendering himself to the French people. On April 26, he was arrested when he entered France, and was taken to Paris to await trial.

In the First World War, Marshal Pétain commanded the defense of Verdun, February–May 1916, and in 1918, was commander in chief of all French armies under Marshal Foch. He was made a marshal of France in the latter year. From 1922–31, he was inspector general of French armies; from 1925–26, commanded French troops in Morocco. He served as minister of war in 1934. Pétain was vice president of the Superior War Council between 1918 and 1940.

PETROLEUM. Toward the close of 1944, the oil industry in the United States, long since short of manpower and materials, was concerned over shortages of aviation gasoline and fuel oil. Stocks of crude and petroleum products in general were still on the decline. And, of course, there was no prospect of relief for civilian users of gasoline. The situation changed quickly in 1945 when military demands began to ease off, as was evident by the authorization June 22 of an increase in the value of ration coupons from four to six gallons, and by the announcement August 15 that rationing of gasoline and fuel oil was ended. The joint army-navy petroleum board had given notice of a reduction in its takings of oil. Thereupon the Petroleum Administration for War (PAW) declared its intention to lose no time in lifting the restrictions and regimentation imposed by it, and stated further that it hoped to liquidate itself by the end of the year.

One of PAW's first moves was to lift the ban on the making of premium gasoline, and the ban against conversion from coal to oil in home-heating. There followed a removal of restrictions on refiners, and they were ready almost overnight with reconversion to the production of quality motor fuel. In a short time virtually all restrictions on the sale, use and marketing of petroleum products had been removed.

The changed situation meant a cutback in crude production, perhaps to 1941 levels or a million barrels less output per day. But increase of activity in foreign oilfields was predicted, also a further increase in our oil imports.

A peak of crude production occurred in mid-July with an average of 4,944,000 barrels daily, and in refinery runs to stills in mid-August with an average of 5,140,000 barrels daily.

The payment of subsidies on stripper-well production had a fair chance of continuing during the rest of the fiscal year, but extra transportation costs could not be expected to continue.

Imports and Exports.—Statistics given out by the Bureau of Mines in July disclosed that wartime imports of oil had been as follows:

	Crude	Refined products
	(thousands of barrels)	
1939	116,883	25,965
1940	78,970	41,089
1941	75,592	46,536
1942	12,297	23,669
1943	13,833	49,066

The bureau pointed out that receipts of refined products in 1943 were the highest on record. These included: kerosine, 375,000 barrels; distillate fuel, 15,992,000, and residual fuel, 26,567,000 barrels. Exports of motor fuel in 1943 amounted to 51,381,000 barrels, the highest since 1930. Other products exported in 1943 were: kerosine, 4,619,000 barrels; distillate fuel, 24,862,000; residual fuel, 16,766,000, and lubricating oil, 8,756,000 barrels.

Other figures show that in comparison with crude imports averaging 37,000 barrels daily in 1943, they more than tripled to 122,000 in 1944, went on to 170,000 in the early part of 1945 and averaged around 260,000 barrels daily near mid-July.

Reserves.—Total proven reserves in the United States at the end of 1944 were estimated by the American Petroleum Institute (API) to be 22,-

131,652,000 barrels, an increase of 389,079,000 barrels during the year. Additions to reserves by discoveries of new pools in 1944 amounted to 511,308,000 barrels, and by extensions of fields and revision of figures, 1,556,192,000 barrels. Against total reserves was charged a production of 1,678,421,000 barrels of oil during 1944.

Besides our reserves of crude as above given in barrels, equivalent to some 3,200,000,000 tons, the Bureau of Mines estimates some 14,500,000,000 tons of shale oil and 2,800,000,000 tons of natural gas.

Total known oil reserves outside the United States, as set forth in testimony before the Senate oil investigating committee, were estimated at 30,500,000,000 barrels, owned or held under concession by these interests: American, 10,125,000,000; British-Dutch, 12,250,000,000; USSR, 6,000,000,000, and other interests, 2,125,000,000 barrels.

Reserves of the Near East have been estimated by PAW at 15,500,000,000 barrels. And there are, particularly in Kuwait, besides the proven, extensive reserves indicated.

In the matter of United States reserves, the Senate war investigating committee—chairman, James M. Mead—expressed the opinion in its fourth annual report that we cannot "oil another war," that with 20 per cent of known reserves we were supplying 80 per cent of the war's needs.

Oilfields.—Well completions in 1944, as given by PAW, totaled 24,154, of which 3,881 were wildcats. For 1945 some 27,000 wells were scheduled, including 5,000 wildcats. Completions the first six months of 1945, in the *Oil and Gas Journal* tally, were 12,820 as against 11,356 in the first half of 1944, and they were classed as 6,908 oil wells, 1,318 gas wells, 3,512 dry holes, and 1,082 service wells. The wildcat completions, numbering 2,055, resulted in 270 oil wells, 64 gas, and 1,721 dry, i. e., about one wildcat in six made a producer.

In field developments, Oklahoma made important contributions by extension of the West Edmond pool near Oklahoma City and the discovery south of there in McClain County of what appeared to be a major field. Mississippi and Alabama added new pools, and Florida a second well. In the Texas Gulf Coast field, a world's deep-hole record of 16,655 feet was made in a Brazoria County well. In East Texas about Carthage a great gas field is under development, the average well good for 50,000,000 cubic feet per day, some rated two to three times greater. A half-dozen gas lines have or will tap the supply, and a Fischer-Tropsch plant is projected for the purpose of converting natural gas into petroleum liquids. In West Texas further discoveries have been made in the deep Devonian and Ellenburger formations, one of the latest of these fields in Ector County and known as the TXL. These deep wells cost $150,000 to $250,000 average to complete.

In Wyoming, the production of black oil was stimulated by war demand. Colorado's Rangely field was revived and extended, a pipeline outlet to Wyoming to be given. The Bureau of Mines laid the cornerstone for an oil shale laboratory at Laramie, Wyo., and began construction on an oil shale plant near Rifle, Colorado.

Crude production in California had been greatly increased during the war. Besides this, shipments of sour crude arrived from West Texas, reaching a peak of over 40,000 barrels daily in July. There were also refined products coming from the mid-West to her ports to the extent of some 100,000 barrels daily. A production of 65,000 barrels daily from the Elk Hills Naval Reserve as set by Congress was attained months ahead of schedule with the completion of some 200 wells. In late August the production was cut back to 15,000 barrels daily.

In the following table, the domestic output of crude oil is given by states for two full years and for the first six months of 1944 and 1945 as a means of comparison.

CRUDE OIL PRODUCTION BY STATES
(thousands of barrels)

Authority: *Oil and Gas Journal*

	1943	1944	First six months 1944	First six months 1945
Alabama	...	43	8	75
Arkansas	27,600	29,418	14,579	14,505
California	284,188	311,793	151,032	165,855
Colorado	2,320	2,944	1,354	1,871
Illinois	82,260	77,413	39,095	37,326
Indiana	5,283	5,118	2,559	2,321
Kansas	106,178	98,762	49,553	48,286
Kentucky	7,883	9,621	4,232	5,052
Louisiana	123,592	129,207	64,285	63,909
Michigan	20,768	18,490	9,445	8,744
Mississippi	18,807	16,337	7,667	9,305
Montana	7,916	8,627	4,337	4,321
Nebraska	635	417	208	157
New Mexico	38,896	39,555	20,284	18,890
New York	5,059	4,697	2,363	2,253
Ohio	3,322	2,937	1,500	1,335
Oklahoma	123,152	124,616	60,703	67,704
Pennsylvania	15,757	14,118	7,296	6,109
Texas	594,343	748,122	355,771	389,958
West Virginia	3,349	3,070	1,570	1,443
Wyoming	34,253	32,388	15,667	20,520
Miscellaneous	52	60	32	41
Total	1,505,613	1,677,753	813,540	869,980

Refining.—Runs to stills increased at a higher rate than crude production in 1944, and gasoline production showed an increase of 22 per cent during the year. Butadiene plants, in the synthetic rubber program, operating on petroleum products reached capacity, yielding about 400,000 tons. The products used represented a net consumption of less than 1 per cent of daily crude oil production. Curtailment of the 100-octane program, and consequent saving of tetraethyl lead, allowed refiners to increase their production of premium grade civilian gasoline early in August. Some refiners were instructed to switch to superfuel in part. A barrel of superfuel takes two barrels of 100-octane gasoline to make, and its rating, as disclosed by PAW, is 130-octane. Many refiners cut down operations of high octane plants to meet more normal demands.

Figures for some refined products are included in a summary made by *Oil Weekly* and based upon reports of the Bureau of Mines and API, as follows:

	First six months (thousands of barrels) 1944	1945
Domestic production, all petroleum liquids	862,468	927,691
Domestic production, crude oil	813,540	870,314
Stocks, beginning of period	484,086	477,089
Stocks, end of period	472,993	452,480
Crude stocks, beginning of period	241,672	220,862
Crude stocks, end of period	229,631	220,781
Runs to stills	809,860	867,476
Motor fuel production	356,110	400,710
Motor fuel stocks, end of period	74,723	79,739
Gasoline production	345,403	388,813
Gasoline stocks, end of period	70,246	74,689
Kerosine production	39,689	39,315
Kerosine stocks, end of period	9,825	9,676
Distillate fuel oil production	118,508	124,976
Distillate fuel oil stocks, end of period	34,242	32,213
Residual fuel oil production	227,959	239,416
Residual fuel oil stocks, end of period	46,649	35,548

Oil Policy.—Early in the year Senator O'Mahoney succeeded the late Senator Maloney as

chairman of the special Senate oil policy committee. In its first formal report the committee outlined a program of inquiry into virtually all phases of the oil industry at home and abroad. It began hearings in May, taking up first the subject of cartels as related to oil. Other subjects on the program included: sources of petroleum in the United States, under which were embraced also factors related to production such as conservation and special laws, taxation, price, etc.; the independent company and its problems; postwar disposal of pipelines, refineries and tankers; petroleum requirements of the United States and the world; our petroleum interests in foreign countries.

Testimony during June hearings indicated that our domestic reserves were ample for all defense needs and for all or nearly all industrial needs for the next twenty years. Some witnesses expressed opposition to government competing in business, and to its policies and controls. The Bureau of Mines gave information concerning the capture of German research records and their advantage in the development of synthetic fuel in America.

A representative of the State Department expressed approval of a new draft of the Anglo-American oil treaty. The treaty had been signed in August 1944, onlv to meet with such criticism from the oil industry that the president withdrew it from Senatorial consideration. A redraft was then made, approved by the Petroleum Industry War Council (PIWC) in December, and submitted to the State Department for study. In September, PAW's Ickes headed an American delegation going to London to renegotiate with the British. A new agreement was signed September 24 and announced as a preliminary step to an international meeting and agreement. A six-man commission is provided to study matters of mutual interest.

Testifying before the special committee in July, a representative of the army specified four recommendations to be included in a national oil policy: pledge by the government to protect our nationals abroad in the pursuit and development of their legitimate enterprises, and to support them in their legal rights; encouragement to the foreign oil enterprises of our nationals with a view to importation of oil into the United States consistent with the maintenance of a progressive and economically stable domestic petroleum industry; early adoption and implementing of the Anglo-American oil treaty; acquisition of military reserves outside the United States when such a course is determined to be in the national interest. Testimony of other witnesses also advocated a strong foreign policy for the United States—in the words of one, "a steady, consistent and effective government policy."

Oil-Powered Warfare.—In April it was estimated that 95 per cent of Germany's crude oil supplies and 75 per cent of her synthetic oil plants had been captured. The same month brought her oil production nearly to an end. Hanover, seat of her main oilfields, was taken by the Americans early in the month. The large synthetic oil works at Leuna, producing 250,000 gallons of gasoline a day, were occupied about the middle of the month, as were the Fischer-Tropsch plants, also in the Leipzig area. Germany literally "ran out of gas." Yet, as an American investigating committee later reported, her synthetic industry was in process of going underground and would have been ready to operate in September.

Similar treatment for Japanese oil supplies began with the first heavy attack delivered in May on large storage in southwest Honshu and on a small island off Kyushu. By mid-year Japan had lost the producing fields of Burma and those of Borneo through recapture. Also, by Russian cancellation of treaty-rights to North Sakhalin oil, Japan lost that source, while virtually all the other occupied oilfields were subjected to effective blockade. But she had been storing oil for many years and had built up a synthetic production. It was these facilities which became the objectives of Allied bomber attacks.

War needs forced England to build a pipeline system extending from Liverpool to the south coast. To this was added Operation "Pluto" (Pipe Lines Under the Ocean), a score of crossings of specially designed pipe under the English Channel, the first of them operating to Boulogne in October 1944. On the continent three systems of pipelines advanced with the armies, from Marseilles, Cherbourg and Antwerp respectively, each system reaching the Rhine and throwing a line across it. From pipeline outlets, and railheads, POL (petrol, oil, lubricants) trucks of the United States Army Motor Transport Service operated. As announced by PAW, the Army Transport Corps delivered an average of five million gallons daily of POL between D-day and V-E Day; and that, from Pearl Harbor on, our expenditure was 22 billion gallons of petroleum products, not including navy's use of fuel in transporting men and materials.

For the Pacific area, it was estimated that a barrel of oil produced there was worth five obtained from America, e.g., it required 21,000 barrels of fuel oil to deliver 100.000 barrels of gasoline from the Gulf Coast to the Philippines.

In an article published in mid-year, the deputy petroleum administrator estimated that since Pearl Harbor the United States had furnished 75 per cent of the 8 billion barrels of crude produced by the United Nations, 82 per cent of the 3 billion barrels of gasoline, and 85 per cent of the aviation gasoline.

World Production.—Later figures on Venezuela crude production indicate a total for 1944 of some 257,000,000 barrels or a 43 per cent increase from 1943, to include a doubling of output in the newer fields of the eastern part to some 74,000,000 barrels. In mid-July, Venezuela was producing over 950,000 barrels daily. Cuba reports a second producing field, and Saskatchewan her first.

In the Soviet Union, new production was developed in the Baku region, but the principal activity centered in the less exploited fields between the Volga River and the Ural Mountains. New areas were opened just east of the Caspian Sea and in central Asia. Russia, now in possession of Poland's major oilfields, leaves that country with a production that totaled only 65,000 barrels for the month of June. Russia receives also the production of Rumania, partly as reparations and partly in trade, for the movement of which new pipelines, one going to Odessa, will supplement the line to Constanza.

During the war England developed a small oil production in Lancastershire. Holland also joined the ranks of oil producing countries, her oil pool extending into Hanover.

In the Near East, Iraq expects to double production when a second pipeline to Haifa is completed. A refinery of 80,000 barrels daily capacity was in prospect for Haifa. Iran also increased her output, in step with expansion of the Abadan

refinery. On Bahrain Island, refinery capacity was doubled to 60,000 barrels daily, while on the mainland, in Saudi Arabia, a new refinery of 50,000 barrels daily capacity was under construction at Ras Tanura. Surveys for the thousand-mile pipeline across Arabia have been made for alternative routes. The Arabs insist the terminus must be in territory predominantly Arabic, but it has been announced in the United States that the terminus will be at Haifa. The sheikdom or principality of Kuwait has been under development by joint British and American interests which completed a first well in 1938 and have drilled others. Operations are scheduled to be resumed and a short pipeline built to the Persian Gulf. Production already secured is estimated at 75,000 barrels daily.

Reportedly the richest oil deposit in China was discovered in 1944 at Kiangyu 200 miles northwest of Chungking, with development to begin in 1945. The war has given the world its longest pipeline, Calcutta to Kunming, about 1,800 miles. Petrol and Diesel oil began flowing into Kunming the past spring, the fruition of a task kept secret and beset with all sorts of heartbreaking difficulties. See also CHEMISTRY.

WORLD OIL PRODUCTION
(thousands of barrels)
(Authority: *Oil and Gas Journal*)

	1944	1943
United States	1,700,000	1,503,176
USSR[1]	256,200	246,375
Venezuela	205,000	187,000
Iran	100,000	77,380
Netherlands East Indies[2]	47,580	52,560
Mexico	38,000	34,500
Rumania	29,700	36,500
Iraq	28,000	27,167
Argentina	24,000	24,836
Colombia	23,000	14,900
Trinidad	22,000	25,000
Germany[3]	18,000	19,199
Peru	15,000	14,600
Saudi Arabia	9,500	4,745
Egypt	9,500	8,976
Canada	8,700	9,958
Bahrain Is.	6,800	6,570
Hungary	6,000	5,658
Japan[4]	3,800	2,227
Ecuador	3,000	2,500
India	2,900	2,555
China	1,100	986
Burma	915	913
Italy[5]	800	995
Great Britain	750	1,095
France	500	600
Bolivia	400	395
Brazil	125	100
Undistributed	300	275
	2,561,570	2,311,741

[1]Inc. No. Sakhalin and part of Poland; [2]inc. Brunei and Sarawak; [3]inc. Austria, Czechoslovakia and part of Poland; [4]inc. Taiwan and So. Sakhalin; [5]inc. Albania.

B. H. LEONARD,
Petroleum Specialist.

PHILATELY. Stamps of 103 governments were chronicled for addition to the Standard Catalogue of 1945. The total number of stamps of all kinds, including 22 United States revenue and 1 war savings stamps, was 1,341, only 49 less than in 1944. In this total were 970 postal and semi-postal issues, 261 air mails, 34 officials, 21 postage dues, 12 postal tax, 8 military, 6 special delivery, 3 postal fiscal, 2 parcel post and 1 insured letter. As in other recent years, the percentage of overprints, surcharges and reissues was high and only 346 new designs were produced.

China led the world in the number of stamps catalogued—76, followed by France with 74 and Russia with 50. The Central and South American countries continued to lead in the number of air mail stamps issued. Venezuela alone produced 38. The postage and air mail issues included 218 commemoratives.

The Vichy government issues, invalidated after the liberation of France and apparently never used in the colonies, were duly chronicled although their final status remains in doubt. They are handsome stamps but may prove interesting only as souvenirs of a vicious regime.

Chinese issues continued complicated as political shifts and economic instability necessitated a great number of overprints, surcharges and hurried reissues. It will be many months before all of the wartime Chinese stamps can be fully catalogued.

Even before V-E and V-J Days, stamps from the Axis countries arrived in the United States in considerable quantities. Among them are many so-called rarities which may well prove worthless and careful collectors should refuse to buy until legitimate prices can be established.

Two distinguished series of stamps were issued by the United States—the Roosevelt memorials and one honoring the marines, army, navy, coast guard and maritime service. The 5-cent of the Roosevelt series and the maritime service stamp will be issued in January and February 1946, respectively.

The San Francisco Conference 5-cent stamp, whose design and wording were suggested by the late president, was issued on the opening day of the conference, April 25. First day sale at San Francisco—$60,000—was the largest for any United States 5-cent stamp; 3,959,403 were sold in Washington on the second day. This stamp was the subject of Mr. Roosevelt's last directive. It had been designed originally with the inscription "Toward United Nations, April 25, 1945," Mr. Roosevelt's words, but without his name. It was planned that he should buy the first sheet at the opening of the conference. Plate numbers 23262, 23263, 23264 were assigned to the stamp in this form but these plates were never sent to press. After Mr. Roosevelt's death April 12 his name was added to the stamp, the new plates, with numbers 23265, 23266, 23267, were printed and the stamps were delivered in San Francisco in time for sale April 25.

Postal routes and services throughout the world were opened as the Allied armies and navies advanced—to Guam January 11, the Philippines January 12, Belgium February 2, etc. In many of the French post offices American troops found stocks of Vichy stamps overprinted "R F," ready for use immediately after liberation. These were among the first of the many European Victory issues. Two of the best of these are the Luxembourg "Thanks to the Allies" set and the French "Victoire." The former comprises four stamps with flags and inscriptions expressing gratitude to France, Russia, Great Britain, and the United States.

The French stamp was designed by Edmund Dulac and shows a beautifully drawn head of Victory. A number of values have been issued and more are to come.

In the United States, popular collecting continued to follow the course of the war, with particular interest concentrated on the San Francisco, Roosevelt, and Armed Services issues and the several Victory stamps from Europe and the Pacific. Great potential interest was shown in the 1941–45 enemy issues and these are certain to be in great demand. None was included in the 1946 Catalogue, published in 1945, and it is probable that "official" and complete information will not be available until sometime in 1946.

Next in order of collecting interest were the stamps of China. Their great variety and the unusual possibility for the discovery of unsuspected rarities have made them especially attractive to the more advanced collectors.

DEOCH FULTON,
Scott Stamp and Coin Company, Inc., New York.

PHILIPPINES (COMMONWEALTH OF THE PHILIPPINES). An archipelago in the Pacific Ocean comprising some 7,083 islands (6,621 of which have an area of less than one square mile), with a total area of 115,600 square miles. Luzon and Palawan, farthest west of the larger islands, are between 500 and 600 miles from the coast of Asia, Manila being 6,929 miles by steamship west southwest from San Francisco, and some 1,900 miles southwest of Tokyo.

Discovered by Magellan in 1521, the islands were conquered in 1565 by the Spaniards, who ruled them until 1898, when they were ceded to the United States on the conclusion of the Spanish-American war in return for a compensation of $20,000,000. After a native revolt which lasted from 1899 to 1902 they were administered by a governor general until the passing by the United States Congress of the Tydings-McDuffie Act, in March 1934, providing for the independence of the islands after a 10-year period as a commonwealth under a Filipino executive. The act provided for the adoption of a constitution, and for the establishment of a government autonomous except for certain responsibilities to be assumed by the United States during the period of transition. The constitution called for in the Tydings-McDuffie Act was approved by the president of the United States in March 1935, and ratified by the Philippine electorate on May 14 of the same year. It provided for a president and national assembly of not more than 120 members, to be elected for three years. The presidential term was at first to be six years, but this was later amended to four, with eligibility of the incumbent for one immediate re-election. Manuel Quezon was elected president in 1935 and was re-elected in 1941. On Dec. 10, 1941, three days after the raid on Pearl Harbor, Japanese forces (the Japanese had begun to settle in the Philippines, especially in the Davao area, soon after the Spanish-American War) landed on Luzon, occupied Manila on Jan. 2, 1942, and on May 6 forced the surrender of the last American forces at Corregidor.

On Sept. 26, 1943, the Japanese set up a puppet Philippine Republic, with José P. Laurel, interior commissioner of the otherwise exiled Commonwealth government, as president elect, and on October 15, Tokyo announced the granting of Philippine "independence." In the meantime, while American-Filipino guerrillas continued to resist the Japanese, President Roosevelt pledged freedom to the Philippines following the war. Identically-worded resolutions were offered in both houses of the United States Congress pledging immediate independence, and on November 13 a bill was approved extending the terms of President Quezon and Vice President Sergio Osmena until the Japanese had been expelled.

On June 30, 1944, President Roosevelt signed a resolution passed by both houses of Congress granting the Philippines independence immediately following the expulsion of the Japanese, not later than July 4, 1946, with provision for United States military and naval bases as a defense measure. This act, confirming and hastening the extension of Philippine independence, was passed a month before the death (on August 1, at Saranac Lake, N.Y.) of Manuel Quezon (q.v.), first president of the Philippine Commonwealth. Vice President Sergio Osmena at once assumed the presidential office.

Principal Islands and Cities.—Over 90 per cent of the total land area of the Philippines (115,600 square miles) is included in the 11 largest islands: Luzon (40,420 square miles), Mindanao (36,537), Samar (5,050), Palawan (4,550), Panay (4,448), Negros (4,205), Mindoro (3,759), Leyte (2,785), Cebu (1,703), Bohol (1,492), and Masbate (1,262). Other island groups included in the Commonwealth are the Babuyans and Batanes, north of Luzon, the Calamian and Cuyo groups northeast of Palawan, and the Sulu group, steppingstones between Mindanao and Borneo. The estimated population in 1941 was 16,971,100, almost all of Malayan stock, foreign born residents including 117,487 Chinese, 29,059 Japanese, 8,709 Americans, 4,627 Spaniards, and 2,439 other Europeans. Manila, on Manila Bay, chief port and business center, is the administrative capital. It had a population of 673,000. Other important centers are Cebu (population 155,100), Zamboanga (137,700), Davao (103,100) and Iloilo (94,300). Baguio (27,000) in Mountain Province, Luzon, is the summer capital.

Religion and Education.—Roman Catholicism is the dominant religion, with 12,603,365 adherents. There were in 1939, 1,573,608 Aglipayans (an independent Filipino sect), 378,361 Protestants, 677,903 Mohammedans, 626,008 Pagans, 47,852 Buddhists, and 13,681 Shintoists.

Education is free and compulsory. It is publicly conducted and co-educational, English being a required subject during the ten-year interim period. There were in 1940–41, 12,369 public schools, with an enrolment of 2,027,957 pupils. There were many special schools, including the Philippine Normal School and 6 regional normal schools, the Philippine School of Arts and Trades, and 26 provincial trade schools, the Central Luzon Agricultural School and 23 provincial agricultural schools, and about 182 farm settlement schools. Higher education was provided in the University of the Philippines, with 7,567 students, and 89 accredited private institutions of higher learning, including the University of Santo Tomás, founded in 1611. In addition there were 468 private schools of various grades of instruction, with 168,584 students.

The 360 newspapers and magazines, published in English, Spanish, and other languages in 1940, had a total circulation of 2,224,340.

Finances.—Total expenditures of 111,675,480 pesos and receipts of 102,982,082 pesos were anticipated in the 1941–42 general budget submitted to the National Assembly on Feb. 11, 1941. (1 Philippine peso = U.S. $.50) During the fiscal year 1940–41 expenditures had been 167,767,838 pesos, receipts, 158,667,903 pesos. The bonded debt on June 30, 1941, was $56,065,000, with a sinking fund, however, of $20,053,931.

Expenditures totaling 137,136,620 pesos were called for in the 1945–46 fiscal year ending June 30. Estimates of tax revenues did not exceed 10,000,000 pesos.

Production.—Of a total area of 73,214,700 acres in the islands, 63 per cent is suitable for cultivation but only 14.1 per cent was cultivated in 1940. Principal products are copra, sugar cane, unhusked rice, Manila hemp, corn, tobacco, and maguey. The islands are among the fore-

most producers of copra and coconut oil in the world. The Philippines in 1941 produced an estimated 21 per cent (3,430,000,000 nuts) of the world output of coconuts. The output in 1940 of raw sugar, including muscovada and panocha, was 984,755 metric tons. It was estimated that the output of sugar in 1945–46 would be only 300,000 to 400,000 tons because of war damage, and that full quotas could not be expected until the 1947–48 season. The tobacco output in 1940 was 36,033,200 kilos. Bananas are the principal fruit, but mangoes, papaya, lanzones, chico, mandarins, and oranges are also grown. The cultivation of rubber had been increasing before the war, until approximately 5,000 acres were being planted annually. Stock raising had been widely practiced, livestock including 3,015,400 water buffaloes, 1,396,200 cattle, 343,500 horses and mules, and 4,446,800 hogs.

The forests, of which about 97.5 per cent belong to the government, yield cabinet and construction timber, gums and resins, vegetable oils, rattan and bamboo, and dye barks and woods. Destruction of the Philippine lumber industry in the war was estimated at more than 50 per cent of the prewar milling capacity. Mineral resources include gold (of which the output for 1940 was 1,096,745 fine ounces), chromite, iron, manganese, coal, rock asphalt, asbestos, guano, and silica.

Manufacture of embroideries, buntal hats, mats, and pottery, had been carried on largely in the homes, but by 1940 there were, in addition to 46 sugar centrals and four refineries, eight coconut oil mills, 70 distilleries, 131 lumber mills, seven soap factories, three textile mills, six cocoa factories, eight shoe factories, 92 cigar and cigarette factories, and 2,391 rice mills.

In 1945, industrial production, damaged and dislocated by the war, remained substantially at a standstill at the midyear, but great efforts were under way to speed recovery. In Manila alone war damage to property was estimated on September 19 by the Philippines Census Statistics Bureau at $500,000,000.

Trade.—Exports for 1940 were valued at 311,849,047 pesos, imports at 269,462,542 pesos. Rating fifth, in 1939, among buyers of goods from the United States, including especially machinery, automobiles and tires, electrical goods and petroleum products, the people of the Philippines claimed to have the highest standard of living among the countries of the Far East. Principal exports, of which the United States in 1940 purchased about 85 per cent, were manila hemp (abacá) and other fibers, sugar, copra and coconut oil, dyewoods, and chromium.

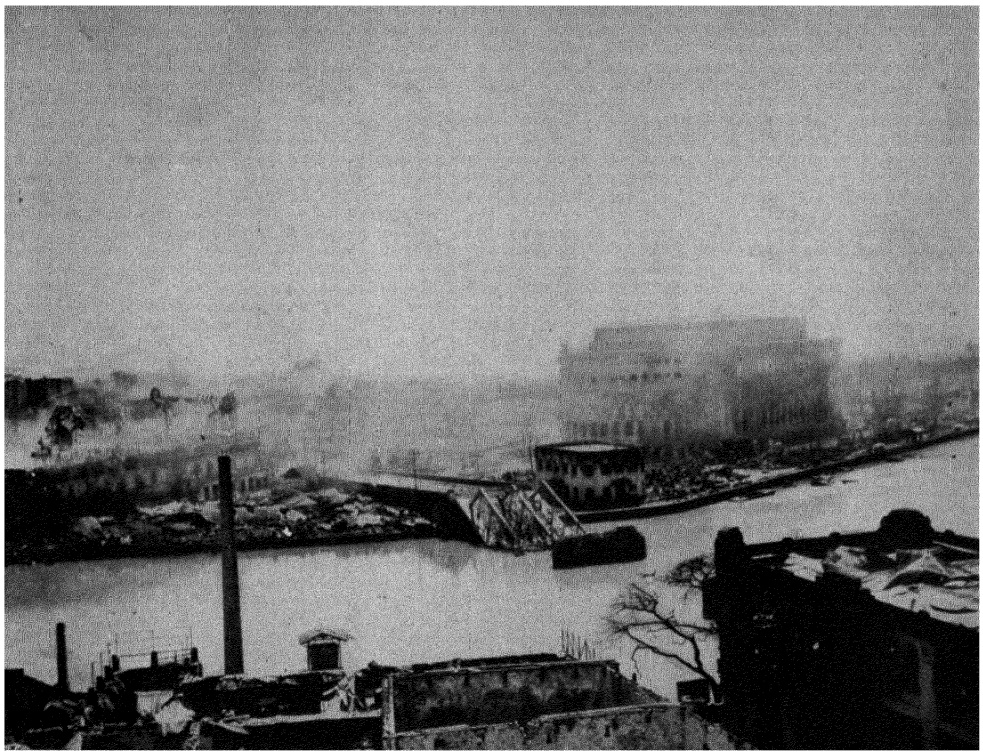
Communications.—In 1940, there were 14,235 miles of highways in the islands, of which over 6,500 were first-class. Total railways mileage was 844, of which 712 miles were government owned. There were 1,050 post offices and 459 telegraph offices.

Principal Events.—Public opinion throughout the world was stirred early in 1945 by accounts of atrocities committed against war prisoners and civilians in the Philippines by the Japanese, who were angered by continued civilian resistance, by increasing American air and sea raids, and by growing, convergent American military victories. These accounts included the description of a typical massacre of inmates, foreigners, and other refugees in the Concordia Convent in Manila, where the Japanese set fire to the buildings and then machine-gunned those emerging to escape the flames. Over 3,000 persons were reported to have perished in this holocaust. Following invasion of the island of Luzon by American armed forces under General Douglas MacArthur on January 10, Manila was entered by American troops on February 3, and the fall of the city was proclaimed on February 6. The island of Mindanao was invaded on March 10; Cebu on the 26th; and Negros on the 29th. Cebu was cleared of Japanese forces by April 21, and thereafter American progress was rapid. The entire island of Luzon was declared liberated on June 28; and on July 5 it was announced that the Philippines were completely freed.

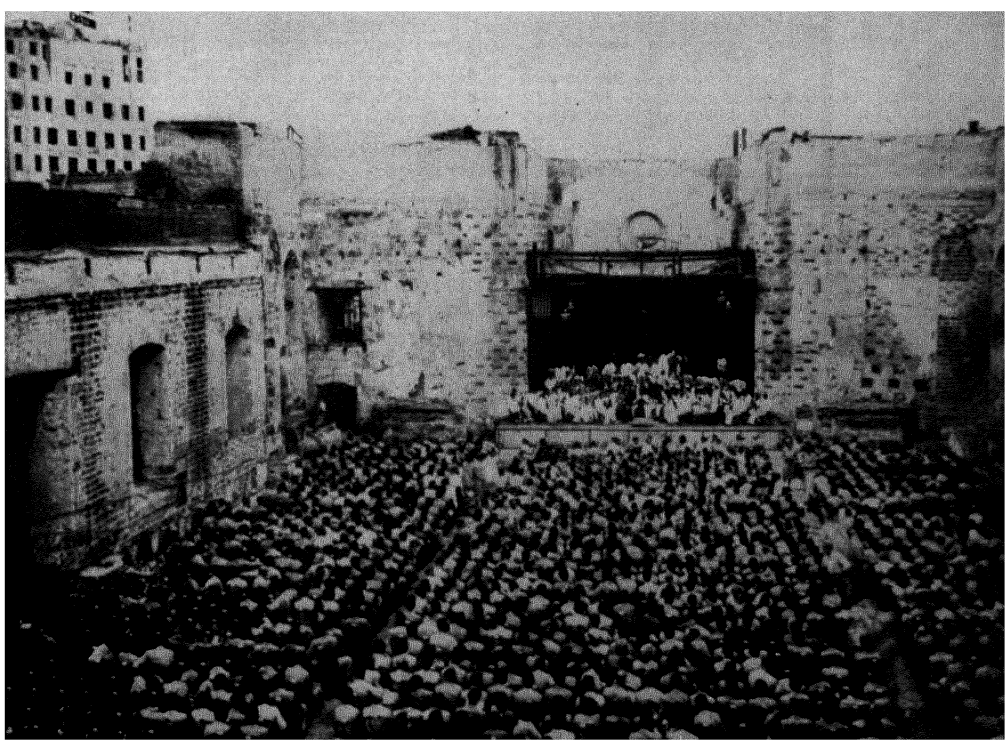
Civil administration had been turned over to the president of the Philippines, Sergio Osmeña, as early as February 27, but participation in the government by Gen. Douglas MacArthur's military forces was not declared officially ended until September 1. Meanwhile the political picture had considerably clouded. In the rice-growing provinces of central Luzon, peasant guerrilla forces known as the Hukbalahap (a native word meaning People's Anti-Japanese Army), estimated at figures ranging from 20,000 active fighters and 50,000 reserves to adherents numbering 150,000, were disarmed, and their leaders, Luis Taruc, commander in chief, and Castro Alejandrino, vice commander, were jailed. At the same time, many figures in the government who had collaborated openly with the Japanese, including representatives of the regular military forces and certain members of the Philippine legislature, remained in power, headed by Manuel Roxas, who has been a prominent figure in the Japanese puppet government of Jose P. Laurel. Roxas had helped formulate the constitution of the puppet government, had headed its Economic Planning Board, and then had become secretary without portfolio in Laurel's Cabinet. Following his incarceration as a collaborationist when the Philippines were freed, he was subsequently liberated, re-entered politics, was elected president of the Senate by a collaborationist majority in the legislature, and became a candidate in the presidential elections then scheduled for November 1945. In this campaign he threatened to overshadow President Osmeña. The latter, committed to a platform advocating independence, appeared to have lost much popularity. The president was accused by political opponents of having weakened his stand for complete independence, of having compromised repeatedly with collaborationists, of inaction, of hesitancy, and of succumbing to reaction. Popular dissatisfaction grew. In August it was estimated that living expenses had climbed to eight times the prewar level; and the black market flourished openly, charging as much as ten times the official ceiling prices. Liberal opposition groups formed the Democratic Alliance, a coalition including most of the liberal opposition groups, including the disarmed Hukbalahap resistance movement. The Alliance was formed too late to influence markedly the impending presidential elections, but if offered a long-range progressive political platform, including land reform; which promised to affect considerably the political future of the Commonwealth.

In Washington, President Harry Truman reiterated on May 5 the intention of the American government to grant independence to the Philippines as soon as possible, adding—"I hope to be able to accept the invitation of President Osmena to visit Manila at the inauguration of the Philippine Republic." Meanwhile President Truman dispatched Senator Millard E. Tydings,

PHILIPPINES



American artillery throws shell after shell across the Pasig River into the walled city of Manila.



To symbolize the rebirth of culture in the Philippines, the Manila Symphony Orchestra gives a concert in the ruins of the Santa Cruz Church, Manila.

chairman of the Insular Affairs Committee to the Philippines to examine conditions and make recommendations. Senator Tydings' report, submitted in June, advocated no change in the policy of granting the islands independence, and included the proposal that the United States grant the Philippines the sum of $100,000,000 in consideration of damages sustained in the war, liberal loans, and a liberal tariff policy. It was reported in September that the elections scheduled for November had been postponed until April 1946, following the receipt by President Osmena of a message from Secretary of the Interior Harold L. Ickes, proposing that accused pro-Japanese collaborationists in the Philippines be brought to trial before elections were held.

On September 6 President Truman appointed Paul V. McNutt, War Manpower Commissioner, to the post of High Commissioner to the Philippines, an office which he had held from 1937 to 1939. On September 23, the president requested Congress to authorize a general election in the Philippines April 30, as an emergency measure which would enable newly elected officers to take over by May 28.

Gen. Tomoyuki Yamashita, Japanese commander in the Philippines during the last eleven months of the war, surrendered at Baguio, Luzon, and was made a prisoner of war, together with his officers. General Yamashita's trial for the atrocities committed throughout the islands under his jurisdiction began on October 8. He was found guilty on December 7, of condoning atrocities committed by his troops, and immediately applied to the United States Supreme Court, which granted him a reprieve.

PHILOLOGY. Scholarly activities in the fields of languages and literatures may be grouped into two classes: (1) those works (predominantly linguistic) which owe their existence to the demands of the immediate pressure of world events; and (2) those works (both linguistic and literary) which have been carried on in spite of, or resumed after, the actualities of war. In the first category we may mention with particular emphasis the commercial publication of a number of basic language courses with record sets which had hitherto been available to service personnel only; W. and J. Moulton's *Spoken German*, B. Bloomfield's *Spoken Dutch*, and C. Hockett's *Spoken Chinese* were among the first volumes to appear (New York). Most of the accomplishments referred to in the following bibliography are more directly traceable to the second category. The periodical *Word*, published by a group of American and European scholars, came out in April 1945 for the first time. Toward the end of the year the Bell Telephone Company announced an invention which may well prove to be of immense importance for the understanding of language: a technique whereby the records of the sound waves that make up speech are made visible, in terms of time, pitch, and amplitude, in such a way that a trained person will recognize the speech utterance in question without hearing it. To judge from the scant reports now available, the technique was designed as a speech teaching device for the deaf. Since, however, one of the chief difficulties in the theoretical mastery of language structure is the proper correlation of the acoustic properties of speech sounds with the finite number of sound distinctions that are meaningful in a given language, the new method promises to aid linguists in bridging the gulf between grammar on the one hand, and the purely physical study of speech on the other. (See R. K. Potter in *Science* 102, 463-70.)

The general scope of the work accomplished in the last year is best gauged by listing selectively such independent publications as may be regarded representative of the main trends. (It goes without saying, however, that much scholarly effort of the highest quality has gone into numerous periodical publications.)

The function of language in general rather than its structure has been dealt with by a philosopher, C. L. Stevenson, in *Ethics and Language* (New Haven). Of general interest to all kinds of philologists is H. J. Chaytor's *From Script to Print* (Cambridge, England). Classical scholars have contributed such works on ancient literary history as E. H. Haight's *More Essays on Greek Romances* (New York) and H. Fränkel's *Ovid, A Poet between two Worlds*, a collection of lectures (Berkeley). E. H. Clift has written on *Latin Pseudepigrapha* (New York), and to A. Y. Campbell we owe a new edition of Horace's *Odes and Epodes*. Y. Malkiel has traced the history of two Latin suffixes, *-antia* and *-entia* (*The Development of . . . in the Romance Languages;* Berkeley), with particular emphasis on their development in Spain. J. M. Blecua devotes a literary essay to that country; *El mar e la poesia española*. E. L. Trumbull's *Contemporary Spanish Poetry*, augmented by a contribution from P. Salinas (Baltimore), offers a selection of originals and translations. C. E. Kany has published a work on *American Spanish Syntax* (Chicago). Here another useful frequency list must be mentioned: C. B. Brown, W. M. Carr, and M. L. Shane, *A Graded Word Book of Brazilian Portuguese* (New York). In the field of Italian literary history we mention Y. E. DiSilvestro's exposition of *La Vita di Grazia Deledda* (Philadelphia).

Among the Romance languages French continues to hold the main interest. We mention E. Cailliet, *Pascal, Genius in the Light of Scripture* (Philadelphia); R. G. Mahieu, *Sainte Beuve aux Etats-Unis* (Princeton); H. C. Lancaster, *Sunset*, a work dealing with French drama at the beginning of the 18th century (Baltimore); R. Dumesnil, *Gustave Flaubert* (Paris); and M. E. Chernowitz, *Proust and Painting* (New York).

J. Sutherland's inaugural lecture treats of *English in the universities* (Cambridge, England). J. A. Roy poses the question *Is there a Scottish Literature* (Kingston, Ont.). H. Granville-Barker, *The Use of Drama* (Princeton) and C. Brooks and R. B. Heilman, *Understanding Drama* (New York) testify to the general interest in the problems of the stage. A. C. Judson has published a *Life of Edmund Spenser* (Baltimore). Shakespeare is, as always, the subject of extensive research: we mention F. Baldensperger, *La vie et l'oeuvre de W. Shakespeare* (Montreal), L. Kirschbaum, *The True Text of Lear* (New York), J. W. Draper, *The Humors and Shakespeare's Characters* (Durham, N.C.), and G. E. Bentley, *Shakespeare and Jonson* (Chicago). D. Bush interprets *Paradise Lost in Our Time* (Ithaca). J. E. Tobin has given us a bibliography (1895–1944) on Alexander Pope (New York). To S. C. Roberts we owe a lecture on *Samuel Johnson* (London). Worthy of particular mention is S. B. Liljegren's *Essence and Attitude in English Romanticism*. E. F. Boyd has written on *Byron's Don Juan* (New Brunswick, N.J.), a phase of the poet's work to which P. G. Trueblood devotes his study, *The Flowering of*

Byron's Genius (Stanford). N. P. Stallknecht's *Strange Seas of Thought* (Durham) deals with Wordsworth. E. Thompson's *Robert Bridges, 1844–1930* (London) and F. M. Stenton's book on *Sir Allen Mawrer, 1879–1942* (London) should not be overlooked. F. J. Hoffmann treats of *Freudianism and the Literary Mind* (Baton Rouge).

W. Matthews and R. H. Pierce have written a bibliography of *American Diaries* (Berkeley) Other aspects of the language and literature of America are dealt with in B. M. Levy's *Preaching in the First Half Century of New England* (Hartford); N. Smither's *History of the English Theater at New Orleans* (New Orleans); Liljegren's *Revolt Against Romanticism in American Literature* (Uppsala); J. C. Colcord's *Sea Language Comes Ashore* (New York); and last but not least, H. L. Mencken's first supplement volume to *The American Language* (New York). G. C. D. Odell's *Annals of the New York Stage* has now been published up to the 14th volume covering the years 1888–91 (New York).

In the field of Germanic languages (other than English) we mention S. Einarsson's *Icelandic Grammar,* including texts with glossary, (Baltimore). German literature is represented by such studies as L. W. Foerster, *Georg Rudolf Weckherlin, 1584–1653* (Basel); J. Boyd, *Notes to Goethe's Poems: Vol. 1* (Oxford); and J. G. Brunan, *Thomas Mann's World* (New York). L. M. Hollander's selection from the *Scalds* (Princeton) makes a highly interesting body of literature available.

In conclusion, four outstanding publications from fields more remote from general interest should be listed: F. J. Carmody's *Interrogative System in Modern Scottish Gaelic* (Berkeley); R. A. Hall's *Hungarian Grammar* (Baltimore); W. Leslau's *Gafat Documents* (New Haven), texts and grammar of a South-Ethiopic language; and M. Jacobs, *Kalapuya Texts* (Seattle) containing extensive records of an Indian language spoken in Oregon.

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PHILOSOPHY. The year 1945 brought the philosophical world no event as melodramatic as last year's assassination of the celebrated Italian idealist, Giovanni Gentile, by unknown partisans (presumably for his early and long-continued support of fascism), nor any occurrence as satisfying to other philosophers as the emergence of Gentile's fellow-idealist, Benedetto Croce, as a central figure in post-Fascist Italian politics. However, the past twelve months have witnessed an event on the American philosophical scene that is of considerable significance, since it appears to prove what many have long suspected: that all is not satisfactory within the circles of academic philosophy. Beginning with 1945, the University of California and Columbia University now require that candidates for the doctorate in philosophy attain a master's degree (or the equivalent) in some nonphilosophical field, such as physical, biological, or social science, art, literature or philology. Both schools have stated frankly that they hope other universities will follow their lead, and both have appealed for financial aid to provide fellowships to encourage students to spend the extra year or so which the new requirement will add to the already lengthy process of securing a Ph.D. degree.

The purpose of this added hurdle is primarily to combat the sterility and excessive technicality of the present graduate study in philosophy, by giving the developing philosopher an assured body of raw material upon which to exercise the finely sharpened intellectual tools which his study has created. This in turn will prevent these instruments of thought from being turned upon themselves in endless self-analysis and ingrowing epistemological criticism. This should influence philosophical thought to turn outward again toward a broad study of human experience, instead of inward to a morbid concern with its own cognitive processes. While it is perhaps too much to expect that we shall shortly see logic and epistemology subdued and reduced to the instrumental role they formerly played in philosophy, this decision by two of the leading universities in the country indicates a healthy reaction against the overwhelming domination of contemporary philosophy by two of its own subdivisions. It is particularly significant that the reaction has reached the very citadel of this domination, the graduate schools themselves.

The routine character of the few books and many articles published in the field during the year gives a pointed timeliness to this announcement. Never very successfully converted to war, the philosophers have quickly returned to the highly technical battles of philosophical controversy. However much the war may have affected the personal lives of contemporary thinkers, there is little evidence in print that the last six years have produced much change in their thought or brought any lessening of their devotion to largely technical problems. There is only one exception to this general return to prewar aloofness sufficiently marked to merit comment, but it may be significant enough to give encouragement to those who have been depressed by philosophy's withdrawal from daily life and universal issues. Surveying current philosophical publications, it is undeniable that the word "democracy" appears far more often than a decade ago. While much of the discussion of democracy is abstract and abstruse, the mere fact that the term has now become a central concept of social philosophy and ethics offers an omen of hope, even if it proves only that some thinkers are now aware that even the philosopher's study is not immune to atomic bombs. In the day when war and revolution usually meant a struggle between armed groups in some distant place, it was natural for philosophers to view such violent clashes of ideas "under the aspect of eternity," which normally meant with considerable detachment. Now, however, that the philosophical world is suddenly revealed to be as roofless as an enemy city, thinkers are beginning to see that philosophy and all that it stands for in human history can be assured a continued existence only if some means are discovered whereby the world of thought can be combined with other areas of man's experience to form one unified world.

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PHOSPHATE ROCK. Another record for the annual marketed production of domestic phosphate rock was made in 1944, according to the United States Bureau of Mines. The quantity sold or used by producers in 1944 reached 5,376,643 long tons valued at $20,856,429 compared with 5,126,232 tons valued at $18,926,021 in 1943. Mined production, including Tennessee brown rock matrix, was 5,200,002 long tons in 1944. Phosphate rock was mined in 1944 in Florida, Tennessee, Montana, and Idaho, and apatite in Virginia. New records were set in 1944 for the quantities of land pebble and total Florida phos-

phate rock sold or used. However, the quantities of both hard rock and soft rock marketed in Florida in 1944 were considerably less than in 1943.

The total mine production of phosphate rock from January to June 1945 was 2,773,894 long tons. Phosphate rock sold or used during this period was 2,629,669 long tons valued at $10,567,755, as compared with 2,682,601 tons valued at $10,183,358 for the corresponding first six months of 1944.

PHOTOPROGRESS. The world continued to be served in many ways by photography in the closing months of the war and in the peace that followed. In Europe the advance of the armies of the United Nations in the west under General Eisenhower and in the east under Marshal Zhukov was photographed from the ground and from the air. Cameramen recorded the final surrender of all German armies and the arrest of the leaders. Photographic evidence of their organized criminal brutality was accumulated. Historic conferences at Yalta in the Crimea and at Potsdam in Germany were covered by the newsreels for world-wide distribution. In the Pacific, cameramen risked their lives also to photograph the invasion of Luzon, the destruction of Manila, the bloody campaign of Iwo Jima, the Kamikaze attacks on the fleet off Okinawa, the bombing of cities on the Japanese mainland, and hundreds of other operations. Finally in August came the photographic recording of the destruction of Hiroshima and Nagasaki by atomic bombing, the occupation of Japan, and on September 2 the signing of the surrender papers on the U.S.S. *Missouri*. Thus ended the most photographed war in history.

Many years will probably pass before the full value of photography in the Second World War can be appraised because only a portion of its many uses can be revealed at this time. The acceleration of the training of the armed forces by the use of hundreds of specially prepared motion picture films and film strips is well known. Combat cameramen covered every phase of each ground operation on the active war fronts. In the air, photo-reconnaissance was a necessary part of all bombing missions as well as to provide factual information for the ground forces. A report of the United States Technical Service Command stated that upwards of 20 million photographs were made each month for military purposes. A typical day's work of one reconnaissance group in the European theater of operations was 45,000 negatives. The quality of the photographic results improved steadily throughout the war as a result of using better equipment, lenses and shutters, and the employment of more skillful personnel.

The first photographs of radar screens to be released publicly were reproduced in June in an issue of *Impact*, United States Army Air Forces magazine. The pictures showed the coast of Normandy before and during the invasion of June 6, 1944 as it appeared on the viewing screen of the radar instrument in a plane flying above thick clouds.

The increased range of antiaircraft fire necessitated much of the aerial photography to be made from high altitudes, over 35,000 feet, or from high-speed planes at lower altitudes. In the former case, the use of lenses of long focal length and haze filters was necessary to reveal ground detail clearly. Lenses of 40-inch and 60-inch focal length were known to have been used and two new 48-inch lenses making 9 by 18-inch pictures were said to be under construction at the close of the war. Thermostatically controlled electrical warming devices were used to prevent distortion from the intense cold at high altitudes.

Although much aerial photography during the war was done from planes without armament protection and which depended on their speed to avoid being hit, announcement was made in August of a photo version of the B–29 Superfortress, called the F–13–A, used by the United States Army Air Forces, which retained the firepower of the B–29 but carried a lighter bombload. It was equipped with six cameras.

An ophthalmic camera was developed by Wing Commander Pierce, RCAF, for photographing the blood vessels of the eye in connection with vitamin deficiency studies of flying personnel. Exposure was made with a high intensity discharge lamp with the camera lens operating at f/80 to f/100.

Experience showed that hand-held cameras, both aerial and ground types, needed to be of rugged construction to withstand field conditions, especially in the tropics. Descriptions of two new combat cameras were published: these were called the Graphic 45 and the Simmon. A cone-type front on the Graphic 45 protects the lens from dust or rain; other features are a built-in flash synchronizer and two shutters (diaphragm and focal plane types). The Simmon combat camera is all metal and has no bellows. It is equipped with protection for the lens and the film recess. An accessory shutter protects the film from fogging during rewinding of the focal-plane shutter.

The use of an Edgerton type gaseous discharge photoflash lamp for aerial photography at night was disclosed by the Army Air Forces.

One of the most spectacular weapons used in the war was a rocket gun. To study the early part of the flight of a rocket, Bell Laboratories developed a high-speed camera known as the ribbon-frame camera. An ingenious feature of the camera is the shutter mechanism which consists of two concentric drums rotated at slightly different speeds in the same direction. The outer drum has five transverse slots and turns 24 revolutions per second and the inner drum has four slots and turns 30 times per second. The film (a standard No. 122 size) passes continuously over a slit, 0.15 inch wide, outside the two rotating drums with exposure times adjustable from 0.0001 to 0.0006 second, the pictures appearing as narrow "ribbons" across the width of the film, 200 pictures per roll of film.

More rapid repair of damaged ships was effected during the war through the aid of photography. Photographs of the damage would be flown from the base in the Pacific to a navy yard on the west coast of the United States. A complete set of blue prints of the ship would be copied on microfilm from the master file in the United States Navy headquarters in Washington. The reels of microfilm would then be flown to the west coast navy base where enlargements of the damaged sections were made. By the time the ship reached port, the damaged sections were refabricated and ready for installation.

Transmission of micro-copies of letters by the V-mail system was suspended October 31. This plan, an adaptation of the Airgraph system developed by Kodak Ltd. in Europe, was inaugurated in the United States in June 1942. From that date until the end of the Japanese war, the War Department reported that more than 1,250,000,000 pieces of V-mail were processed.

Since 1,800 V-mail letters could be copied on each 100 feet of film, the plan resulted in a saving of 98 per cent of space on planes as compared with that occupied by the same number of letters packed in standard mail sacks. Loss of mail by enemy action was also avoided by the use of V-mail because the original letters were not destroyed until certification of the delivery of photocopies was received by the transmitting station.

Color photography was used to a considerable extent for documentation purposes in the Pacific war. A series of Kodachrome transparencies made by the United States Marine Corps of the life of the people on Okinawa island were reproduced in the September issue of *National Geographic Magazine*. Aero Kodacolor film was used to some extent for reconnaissance purposes by the United States Navy and Air Forces. This product could be processed in field or ship laboratories. One of the most remarkable color pictures of the war was the view showing the firing of a salvo from two triple batteries of 16-inch guns of the battleship U.S.S. *Missouri*. In the Kodachrome picture the six projectiles can be seen as well as the entire ship with the fire and smoke belching from the guns.

The establishment of the United States Navy Photographic Institute under the directorship of Capt. E. J. Steichen, USNR, was announced by the navy in July. Promotion and encouragement of outstanding photography of naval subjects will be recognized by annual awards in the fields of still and motion picture photography.

Civilian Uses of Photography.—At the close of the war with Japan in August, photographers were much encouraged at the prospect of getting more films and paper. The military requirements had been so great during the first half of the year that civilian deliveries had been very much curtailed. Manufacturers of photographic equipment were in a much better position to fill existing orders and to start building new apparatus as a result of the rescinding on September 15 of the WPB Limitation Order L–267. This order had restricted them to 3 per cent by weight of the metals used for photographic apparatus manufacture in 1941. Military needs of the armies of occupation and back orders of servicemen were given preference. Sale of surplus photographic equipment and materials by the Office of Surplus Property of the United States Department of Commerce aided somewhat in relieving the civilian supply shortage.

Reconversion of the photographic industry to a peacetime basis, according to a report in The New York *Times* in September, was proceeding smoothly with very little loss of time. Although all companies had made many specialized products during the war, they had continued also the manufacture of photographic materials throughout this period. Cancellation of war contracts therefore made available added floor space and equipment for normal peacetime products.

Prospects for a wide expansion of color processes appeared very bright and it was generally expected that some of the developments in this field that had been used by the armed forces would be made available in the same or modified form for civilian use. Such monopack processes as Aero Kodacolor, Ansco Color, and Gasparcolor offered promise for adaptation to amateur and professional use. A comprehensive article on the history, chemistry and characteristics of color development was published by Tull in January in the *Photographic Journal* (London), Section B. Small enlargements (playing card size) known as Minicolor continued to be quite popular among users of 35-mm. Kodachrome for sending to their loved ones in service.

The Kodak Dye Transfer Color Print process was announced in September. It represented an improvement over the Wash-Off Relief process in that it gave better color saturation, greater control of registration, and required less time to make a print.

Some of the finest portraits of the year were made by Karsh of Ottawa who sprang into prominence in 1942 with his striking photograph of Winston Churchill, then the British prime minister. Subsequently, Karsh traveled to London, Washington, San Francisco and other cities to make portraits of the world's great leaders.

Press photographers were permitted to accompany the armies as war correspondents during the European battles and the island warfare in the Pacific. They worked in close collaboration with the combat cameramen of the Signal Corps and the Marine Corps. As a result of this plan and the prompt release of many photographs by the armed forces, the public was able to see "spot news" quickly. One of the most remarkable newsreels of the year was *Iwo Jima*, 1,000 feet long selected from 50,000 feet of film, exposed by 60 combat cameramen. Another example of high quality photo-reporting was the 17-picture story by W. E. Smith entitled "24 Hours with Infantryman Terry Moore" which appeared in *Life* on June 18. While photographing this story on Okinawa, Smith was wounded by Japanese fire. A still photograph showing a group of United States Marines raising the flag on Mt. Suribachi on Iwo Jima was published very widely and used as the symbol for the Seventh War Loan Drive. It was made by Rosenthal of the Associated Press.

The official motion picture record of the European campaign from Normandy to the heart of Germany as made by combat cameramen of nine Allied nations was released in September for theater showing under the title *The True Glory*. Another excellent documentary motion picture showed the destruction of the city of Manila.

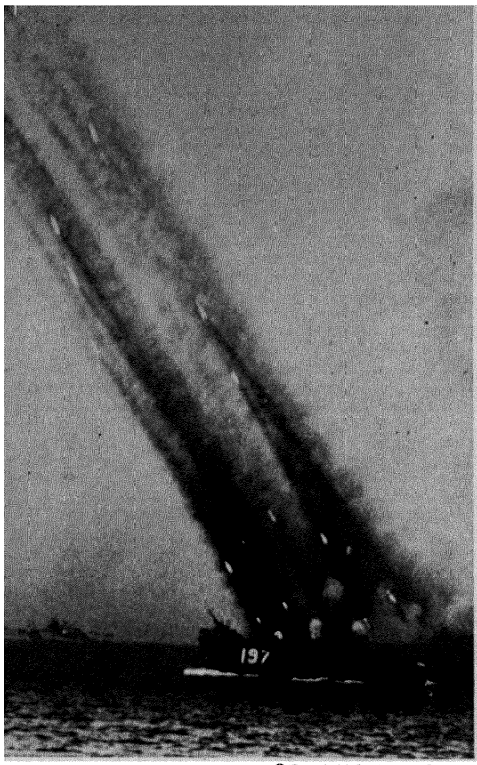
As one of the consequences of the successful use of 16-mm. training films for military and industrial instruction during the war, it was expected that wider use of this medium would be made by schools and industry than had been made before the war. Toward this end, the University of Chicago was establishing a center for the study of audio-visual instruction in their department of education. The United States Office of Education reported the completion of a new series of 16-mm. sound films on problems of supervision to be released for use by educational and industrial authorities.

Large-scale aerial surveys were initiated in various countries; some using the Tri-metrogon system of photography.

Improved methods of tropical packaging of photographic materials and equipment were developed during the war. It was expected that the information gained from this experience would be applied for the prevention of corrosion and deterioration that occurs in hot, humid climates and thus assure a higher quality of products for use under such conditions. The wrappings included rip-strip cans with lithographed labels, waterproof laminated bags and preservative dips.

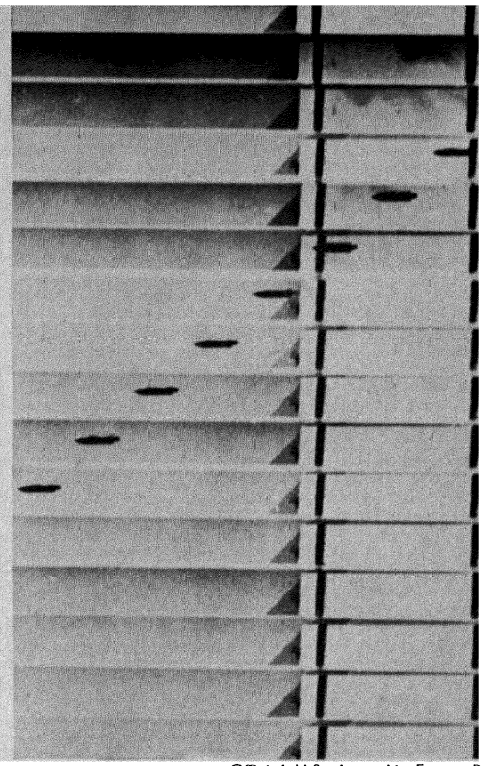
The Photographic Process.—Several new package developers were placed on the market during the year; one firm introduced a group of them with such phonetic names as Dektol, Microdol, Versatol, and Selectol. A continued trend toward

PHOTOPROGRESS



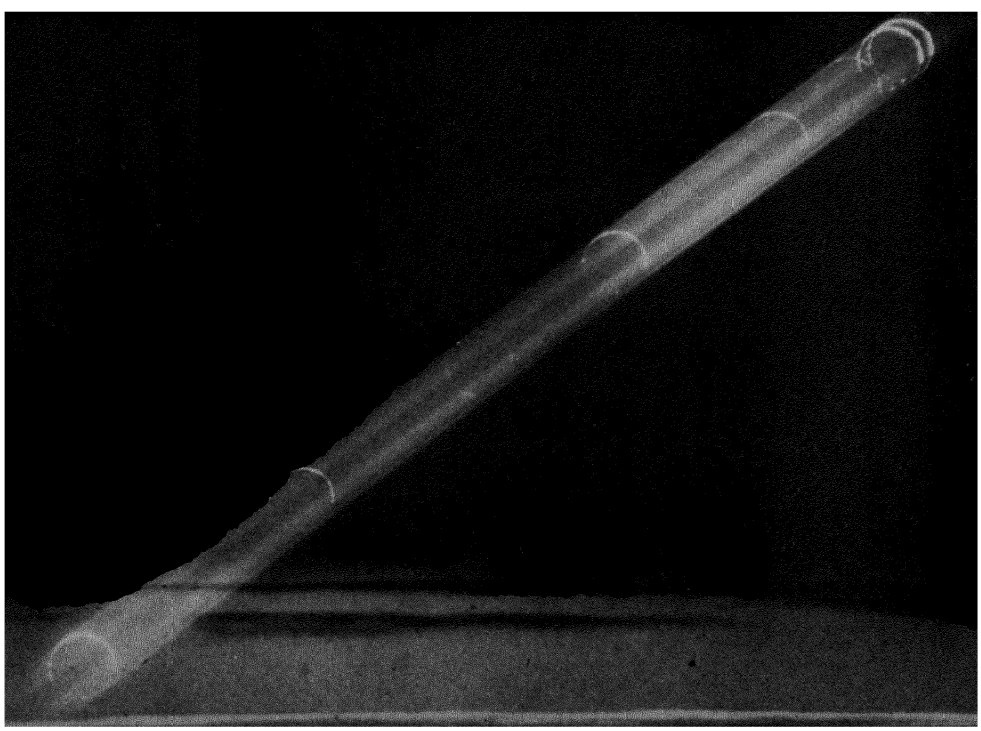
Official U S Navy Photograph

Constant stream of rockets shown in this remarkable photograph taken as rocket ship bombards Okinawa just before invasion.



Official U.S Army Air Forces Photograph

Successive stages of firing of rocket gun as photographed by Ribbon Frame camera.



Spectrum photograph of the solar eclipse July 9, 1945, photographed in 1/45 second from Mitchell plane at 26,000 feet with Cooke Telephoto 20-inch lens at f/3.6 using Wood Grating having 14,440 lines per inch. Spectrum extends from the red hydrogen line (at lower left) to violet calcium pair.

greater use of chemicals in this convenient and accurate form was noted.

Methods of controlling the formation of calcium sludges in photography were discussed by Henn and Crabtree who specified the use of a tetraphosphate in a developer as the most effective sequestering agent. The action of formaldehyde-hydroquinone developers was studied by Yule. These are used by photoengravers for films requiring images of very high contrast, such as those used for half-tone and line work. Yule concluded that the tendency of such developers to produce a filling-in of fine lines is caused by "infectious development."

A quinone-thiosulfate intensifier devised by Muehler and Crabtree was claimed to produce a greater degree of intensification than any other known single-solution intensifier, particularly when used with high-speed negative materials.

Processing formulas for Ansco Color Reversible Sheet film were published in the March-April issue of *The Ansconian*.

Photographic Standardization.—Problems of unification of practices in the photographic field were studied further by various subcommittees of the War Standards Committee on Photography and Cinematography Z52 of the American Standards Association. Photographic flash lamps were evaluated on the basis of their picture taking characteristics in specification Z52.43–1944. Three new sound quality test standards for 16-mm. motion picture prints were also established as follows: Z52.15–1944, intermodulation tests on variable density prints; Z52.39–1944, cross modulation tests on variable area prints; Z52.38–1945, signal-to-noise-ratio of 16-mm. sound motion picture prints.

Other subcommittees of the Section Committee Z38, Photography, of the American Standards Association were known to be working actively on other problems of standardization.

Applied and Scientific Photography.—The eclipse of the sun on July 9 was studied photographically by groups of scientists who set up their equipment in Montana and in several provinces of Canada. Several beautiful photographs were made from planes flown by the Royal Canadian Air Force.

In the first of a series of studies conducted by the Illinois Institute of Technology in collaboration with the Chicago Symphony Orchestra, photographs were made at the rate of 1,000 pictures per second of the finger technique of the violinist, Milstein, during his playing of trills and glissandi in difficult passages of a concerto.

An electronic sequence timer permitting six microflash lamps to be fired at intervals of 0.6 to 0.0003 second apart or simultaneously was developed by the Air Technical Service Command at Wright Field, Dayton, Ohio for the purpose of studying effects of gunfire on armor plating and other phenomena requiring high-speed photography.

The efficiency of airplane engine-propeller combinations was investigated by Fairchild Engine and Airplane Corporation by making motion pictures at a rate of four per second through a special wire grid which was mounted rigidly five feet in front of the camera. When the grid was placed 1,000 feet from the runway, each square measured 20 feet of runway. Propeller efficiency was determined from graphs drawn from the projected motion picture.

At the March meeting of the Rochester Technical Section of the Photographic Society of America, Condit showed color motion pictures of the whole sky made with a time-lapse camera. A convex mirror 12 inches in diameter reflected the image of the entire sky hemisphere into a small plane mirror mounted 30 inches above it. The latter image was photographed with a Ciné-Kodak Special equipped with a motor drive and a set of gears which allowed six different speeds, varying from one to twenty pictures per minute. When the film was projected at the normal rate of sixteen per second, the appearance of the sky throughout a complete day could be seen in a minute or so. Photometric data made at the same time were correlated with the motion pictures. See also under PHYSICS—*Applied Physics*.

Bibliography.—Books of interest published during the year included the following: Beaton, C., *British Photographers* (W. Collins, Glasgow); Blair, J. M., *Practical and Theoretical Photography*, 2d ed. (I. Pitman, New York); Cameron, J. R., *Encyclopedia of Sound Motion Pictures*, 5th ed. (Cameron Publishing Co., Woodmont, Conn.); Clerc, L. P., *La Technique Photographique*, 3d ed. (P. Montel, Paris); Eder, J. M., *History of Photography* (Columbia University Press, New York), tr. by E. Epstean of Dr. Eder's *Geschichte der Photographie* (4th ed. 1932); Johnson, B. K., *Practical Optics* (Hatton Press, London); Kraszna-Krausz, A., *Photography as a Career* (Focal Press, London); Kraus, H. F., *The Use of Photographs in Layout* (MSR Publishers, New York); Partington, Frank and Molly, *The Art of Photographing Children* (Fountain Press, London); Pike, O. G., *Nature and Camera* (Focal Press, London); Sayre, I. H., *Photography and Platemaking for Photolithography*, 2d ed. (Lithographic Textbook Publishing Co., Chicago); Tupholme, C. H. S., *Photography in Engineering* (Faber and Faber, Ltd., London); U.S. Navy, *Photography*, 2 vols. (Government Printing Office, Washington, D.C.).

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PHYSICS, Recent Progress in. The advent of the atomic bomb is easily the outstanding development in physics during the present calendar year. This is not the place to enter into a detailed discussion of its significance for war and peace, and of course much about its construction is still a military secret. However, it is appropriate to point out that the atomic bomb is the result of a straightforward application on a very large scale of discoveries in pure physics of the past fifty years. These discoveries were made initially because of the physicist's overwhelming urge to find out how things go and not primarily with the thought of practical application. It would be hard to find a more striking illustration of the dividends ultimately paid by "pure" research and therefore of the value of encouraging this type of disinterested investigation of natural phenomena. The development of the atomic bomb and other important wartime applications of physical principles, e.g. radar, has, to be sure, given a tremendous stimulus to proposals for government aid to research in pure and applied physics. Much discussion is now underway concerning the most satisfactory method of providing this assistance. The numerous references to the problem in the public press give evidence of much confusion about the real nature of physical research or indeed of scientific research in general. Much emphasis has been laid on the desirability of large-scale planning, which of course has been very successful in carrying out the practical projects of wartime. What is overlooked, however, is that no amount of planning involving large teams of physicists working under "expert" direction and at huge expense will necessarily lead to the development of such fundamental physical theories as relativity and quantum mechanics. It is in fact a logical contradiction to "plan" to discover what you are unable even to think about until you have discovered it! No

physicist questions the value of planned, co-operative large-scale research in the solution of definite problems based on the use of all physical theories now available. Action to this end is imperative. But it should not be forgotten that the future progress of physics will continue to depend on: (1) discovering the largest possible number of young people interested in natural phenomena and with keen, inquiring minds; (2) giving them the best possible scientific education; and (3) providing them with the opportunity to think and experiment without restrictions of any kind. It does not require an exaggerated belief in the potentialities of the human mind to feel complete confidence that persons so selected, educated and equipped will develop the fundamental physical theories of the future without which there can be no ultimate success in the application of physics to human needs.

Postwar physical research in the United States will be seriously hampered by the cumulative shortage of trained physicists resulting from our wartime policy of practically abolishing the graduate study of physics by able-bodied men. The number of Ph.D.'s graduated in 1944 fell to 55 compared with 191 in 1941. Even if the present policy were to be reversed immediately and graduate study were to be renewed at full blast, it has been estimated that by 1953 the United States will have accumulated a deficit of 1,800 graduate physicists. What this means can be best appreciated in the light of the fact that there are only 2,833 Ph.D. physicists listed in the National Roster of Scientific and Specialized Personnel and many of these are old men inevitably passing every year out of their careers of activity.

The remainder of this article is a brief sketch of some recent developments in the principal branches of physics, listing the latter in alphabetical form for convenience. It is impossible within the confines of a short article to do justice to all discoveries: those selected for notice merely reflect the taste and judgment of the reviewer, who has tried to emphasize material of interest to the general public.

Acoustics.—Physicists always feel a special sense of satisfaction when research in one field yields results of importance in another. A very good example is provided by the action of high frequency sound waves on concentrated solutions of high-polymers, namely organic substances of very high molecular weight like gelatine, rubber, and the various plastics now becoming so well known. H. Mark has an interesting review of this work in the January 1945 issue of the *Journal* of the Acoustical Society of America. One of the principal effects of supersonic radiation is a decided decrease in the viscosity of such solutions. If the frequency does not exceed 100 kilocycles the solution gradually recovers its original viscosity after the irradiation has ceased. This is interpreted to mean that the high frequency sound waves tend to pull the long chain molecules apart and to keep them from getting as entangled as they would normally be. When the sound is turned off the ceaseless Brownian motion of the molecules tangles them up again and restores the viscosity. One might expect that even higher frequencies, e.g. 300 kilocycles or higher, might actually break up the molecules and lead to an irreversible decrease in viscosity, i.e. one that would not be restored after removal of the radiation. This is indeed found to be the case, indicating that supersonic radiation can actually bring about chemical degradation and lower the molecular weight of high-polymers. The practical possibilities of this effect are already being exploited.

Turning to an acoustical problem of more purely academic interest, we find A. T. Jones in the April issue of the *Journal* of the Acoustical Society examining a very old problem, namely the behavior of singing flames. The sounds produced when an air tube closed at the far end is brought down over a gas flame have been known a long time. The hitherto accepted theory is that by Lord Rayleigh, who assumed that standing sound waves are necessary in the tube supplying the gas for the flame in order to maintain vibrations in the air tube and thus make the flame "sing." Jones has established that Rayleigh's theory is inadequate and that the singing depends to a large extent on the time taken by the flame gases to rise from the orifice to the top of the flame. Moreover the viscosity in the orifice plays an important role. Evidently a singing flame is by no means a simple thing!

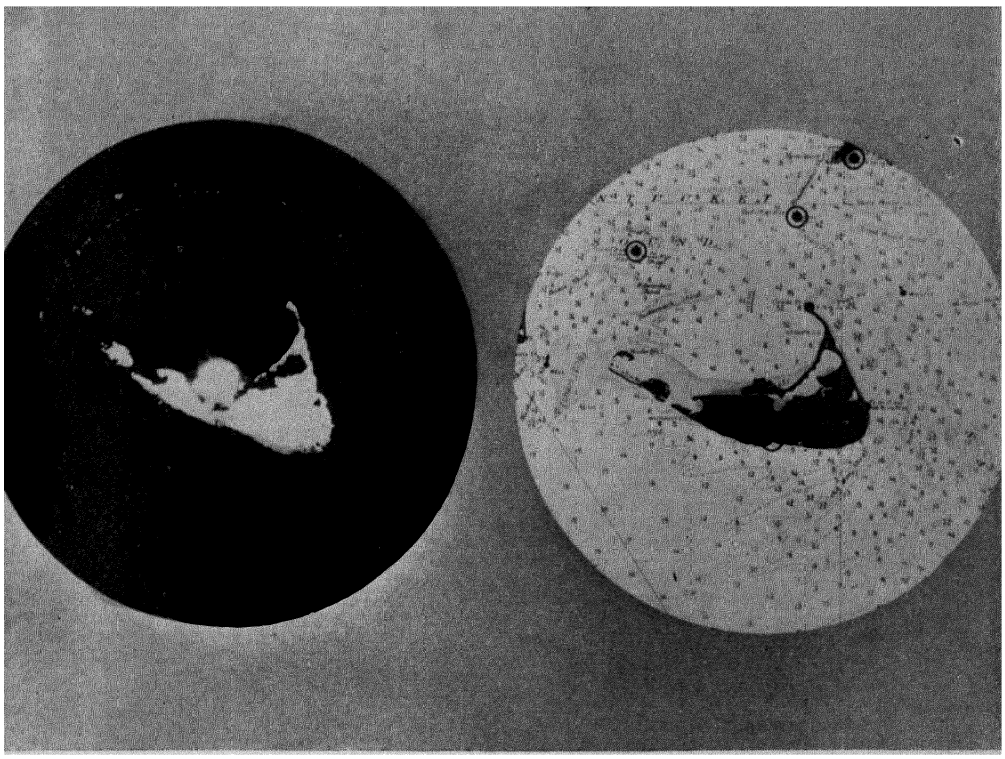
A well-known source of high-frequency sound radiation used for underwater signalling is the vibrating quartz crystal employing the so-called piezoelectric effect. In practical use such crystals are ordinarily flat plates, but in the April issue of the *Journal* of the Acoustical Society of America, L. W. Labaw presents the results of some experiments using curved crystals as radiators. At a frequency of approximately one million cycles, definite focusing action is evident when the radiation leaves a concave surface. This intensification of the acoustic beam may have considerable practical application in modern supersonic research. Further investigation is necessary, for the problem is by no means so simple as the focusing of light by a curved mirror, for example. It appears rather that curving the crystal somehow allows it a larger vibration amplitude than a flat crystal would have for the same impressed voltage.

Another noteworthy research of L. W. Labaw, performed in the acoustics laboratory at Brown University, is the development of an ingenious method for plotting experimentally the wave front of a progressive high-frequency sound wave in water or other liquid.

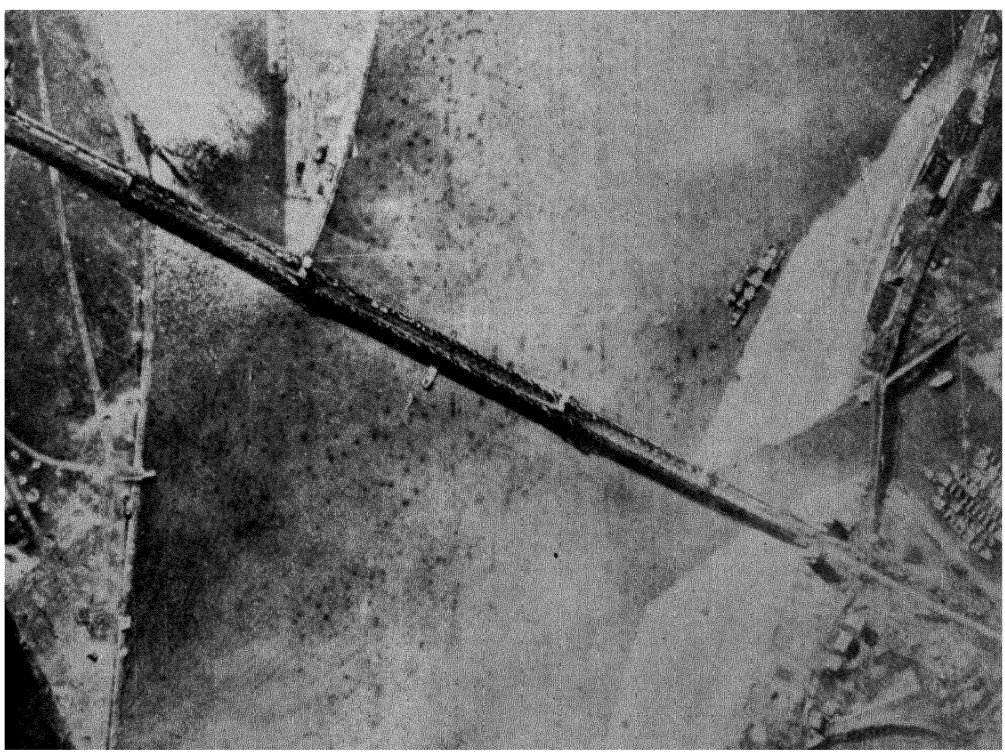
The progress of acoustics like that of other branches of physics depends largely on the development of accurate measuring instruments. The combination of electronics with sound has led to enormous advances in this field. Thus in the July issue of the *Journal* of the Acoustic Society of America, Frank Massa describes a new piezoelectric crystal microphone for measuring sound pressure very accurately over a frequency range from zero up to 20 kilocycles (i.e. the whole audible range), and over a pressure range from zero to a million dynes/cm^2. Its high impedance guarantees that it will produce very little disturbance of the sound field in which it is placed. Just as a high resistance voltmeter provides a more accurate measure of the electrical potential difference between two points in a circuit than a low resistance meter, so this new acoustical pressure gauge will provide much more accurate measurements of acoustic pressure than have hitherto been possible. The gauge is also interesting in that it will probably use the new piezoelectric crystal primary ammonium phosphate in its construction.

Applied Physics.—With the end of the war we may expect to see the gradual release from military restrictions of a host of physical instruments and gadgets for peacetime application. One of

PHOTOPROGRESS



Photographs comparing aerial radar scope of Nantucket Island with actual chart of island. Land areas appear white; aircraft and shipping appear as white dots; water black on radar screen.



RAF reconnaissance night photograph showing vehicles traveling eastward across Duisburg-Homburg Bridge in German retreat across the Rhine by night.

the most important of these is undoubtedly radar, the fundamental principle of which has now been made clear to the general public through the press. It is based on a very old idea, namely that of the *echo,* but its application to radio waves of ultra short wave length has been made possible by electronic techniques of marvelous adaptability. In one field alone radar will probably pay for all its wartime development cost. This is the guidance of aircraft to decrease enormously the hazards of blind flying and landing. A device is in prospect which will show on a fluorescent screen at every airport the exact instantaneous positions of all aircraft within a radius of 25 miles. A further device mounted in the plane will show the pilot visually his instantaneous position relative to other aircraft and possible obstacles such as buildings, mountains, etc.

Scientific applications of radar will doubtless turn up in the most unexpected places. Thus it has already been proposed to use it to study the migratory flight of birds. Here it would provide automatic registration at appropriate stations in place of the usual haphazard direct visual observation by human observers.

High-speed photography, with many uses in aeronautical and ballistic research, has taken a decided step forward through the development by the Western Electric Company of some new high-speed cameras. One type takes 8,000 pictures a second on 8 mm. film with an exposure time of 33 millionths of a second and another takes 4,000 pictures a second on 16 mm. film with an exposure time of 83 millionths of a second. By projecting the resulting pictures at the standard rate of 16 per second the action can be appropriately retarded for special study. The system employed differs from the now well-known scheme of Edgerton in which the continuously moving film is exposed by light flashes of high intensity and short duration. In the new cameras, the film also moves continuously but the illumination is also continuous. By means of 4 or 8 sided prisms placed between lens and film the image is flashed on the film only at certain definite instants.

Vacuum tube technique progresses faster than one can follow it in a review like the present. Westinghouse announces the development of a super-sensitive tube smaller than a 25 watt incandescent lamp bulb which is so sensitive that when used in association with a photoelectric cell it can detect 10^{-14} of the light given off by the average home reading lamp. It is expected to be of great use in measuring the intensity of starlight.

Everyone knows of the manifold uses of X-rays in industry and medicine, but new applications continue to crop up. C. Frondel, the mineralogist of the Reeves-Ely Laboratories in New York, has been studying the change in the elastic properties of quartz and other crystals produced by radiation with X-rays. Color changes have been known for some time. But the change in elasticity can produce a definite change in the resonance frequency of quartz crystals used as a source of supersonic radiation. Hence the practical application.

Astrophysics and Geophysics.—Perhaps the outstanding event in the astrophysical world this year is the announcement by the British biologist, J. B. S. Haldane of a new theory of the origin of the solar system. One now expects such things to be both up-to-date and daring. Haldane's theory fulfills both requirements: it employs the quantum theory and it is a bold extrapolation of the so-called kinematical relativity developed some ten years ago by the British astrophysicist, E. A. Milne. No really popular account of Milne's theory has ever appeared. Indeed some authorities, notably Herbert Dingle (another British physicist), believe that this is impossible and that when the attempt is made to translate the theory into ordinary everyday language absurdity results. Such controversies should not disturb the layman: they are part of the very life blood of science progress. Haldane deduces from Milne's theory that the earliest date for the formation of the solar system was about 4×10^{11} years ago and that the planets were pulled out of the sun through the agency of a single photon possessing the enormously high frequency of 10^{72} vibrations per second, with resulting energy of the order of 10^{32} kilowatt hours, a super atomic bomb, in a very real sense! He believes that such a "lump" of energy must have been born when the universe was only 10^{-72} seconds old. It all sounds fantastic, but most physical theories do when they are first announced. The interested reader will find a complete account of Haldane's ideas in the July 1945 issue of *The American Scientist.* The original announcement appeared in *Nature* for Feb. 3, 1945.

Harlow Shapley continues his preoccupation with the galaxies, those huge collections of stars of which our own Milky Way is to us the most shining example. They are of two principal types, the spiral (decidedly the more numerous) and the spheroidal. Jeans originally proposed a theory that the spheroidal galaxies gradually evolve into the spiral variety. Shapley presents evidence favoring the opposite point of view, that it is the spirals which are the young galaxies and the spheroidals, the elder brethren. As evidence he directs attention to the super giant stars which are common in the spiral galaxies but rarely found in the spheroidal systems. Since it is now believed that the life of a supergiant is relatively short, it follows reasonably enough that the spirals are in the early stage of evolution. There is indeed one catch: perhaps the supergiants are still being born, in which case the logic of the above reasoning would not be so compelling. But astronomers must reason boldly if they want to reason at all!

The common theory of the production of the aurora and magnetic storms on the earth's surface is that they are due to charged particles ejected from spots on the sun. In this connection it is of great interest that recent work at Mount Wilson Observatory has given the first clear-cut evidence of the existence in interplanetary space of charged calcium atoms (ions) approaching the earth from the sun with velocities (about 1,000 kilometers per second) adequate to account for the appearance of auroral displays. The latter usually take place some 24 hours after the appearance of a solar flare near a sun spot. The figures check moderately well. The observational evidence is spectroscopic in character.

While we are on the subject of the aurora, we should notice the work of Stebbins, Whitford and Swings, who have detected the existence of infrared radiation of unusually high intensity in the light of the night sky. The intensity fluctuates with time but has a maximum value about 100 times that of the famous auroral green line. The wave length is of the order of 10,000 Ångstrom units. In a sense this phenomenon may be said to correspond to an infrared aurora. Its distance above the surface of the earth has not yet been estimated.

The theory of the expanding universe depends on the well-known red shift in the spectrum lines in the light from the distant nebulae. This shift is usually interpreted in terms of the Doppler effect as indicating a real recession of the nebulae with velocity increasing with the distance from our galaxy. But alternative explanations have not been lacking and each year brings out a new one. Thus in *Nature* for March 17, A. J. Schneiderov proposes to find the origin of the red shift in the force exerted on the incoming photons by the stars of our galaxy. This would tend to accelerate the light particles. To maintain the principle of relativity, which insists that the velocity shall not exceed the figure 3 x 10^{10} centimeters per second in free space, and to satisfy the law of gravitation all at the same time, he finds that the frequency of the photon as received by us must be less than that of the photon as emitted by the distant nebula. The effect is greater the farther away the nebula. But no exact figures are given. It may well be that all such "explanations" of the red shift simmer down to pretty much the same thing in the final analysis.

No review of astrophysics would be complete without at least a passing mention of the total eclipse of the sun on July 9, 1945 which produced many astronomical expeditions to northwestern United States and western Canada, as well as Russia. Preliminary reports on the results will be found in the August issue of *Popular Astronomy*.

Biophysics.—When a biologist makes an excursion into physics and a theoretical physicist turns biologist it is news. We have already noted Haldane's cosmological adventure under *Astrophysics*. Here it is appropriate to call attention to the little book *What is Life?* brought out this year by Erwin Schrödinger, the celebrated author of wave mechanics and one of the world's leading authorities on quantum theory. The idea he presents is a fascinating one. The regularity we appear to see in the inorganic world about us and which we describe in terms of the laws of physics is actually only a statistical regularity due to the mutual action of vast numbers of entities (i.e. atoms and molecules) whose individual fates are quite fortuitous. It is indeed only the continual transformation of order to disorder with resulting approach of entropy to a maximum that guarantees any stability and permanence to our physical laws. With living organisms, however, the situation must be otherwise, for all of them, whether simple or complicated collections of cells, show an orderly stability over relatively long periods of time which cannot be due to mere statistical regularity, since the number of vital entities concerned (i.e. the cells) is not numerous enough. The explanation is to be found, thinks Schrödinger, in the assumption that the fundamental units in the cell, i.e. the genes, are controlled by the quantum theory. Mutations in organisms on this view are produced by quantum transitions between relatively stable molecular configurations of indivídual genes. The biologists will doubtless find much to question in this ingenious hypothesis, but if it encourages greater collaboration between biologists and physicists it will have served a very useful purpose.

General Physics.—One might suppose that, with all the physical experimentation which has gone on through the past centuries, the properties of matter in bulk would by this time have been pretty well pinned down so that nothing new could turn up. That this is not really the case provides some of the excitement in physics. As an illustration consider the peculiar substance into which liquid helium is transformed when the temperature is lowered below 2.2°C above absolute zero (i.e., below —270.8°C). A recent review of this strange liquid by the Russian physicist, Kapitza is noticed in *Nature* for May 19. It differs from all liquids previously observed in that it flows with absolutely perfect freedom, that is, has no measurable viscosity whatever! Moreover it possesses abnormally high thermal conductivity. With it, convection currents can be made to flow in one direction only, with no *observable* return flow! It is believed that these properties of liquid helium II (as it is called to distinguish it from its more normally behaving chemical prototype, ordinary helium I) will ultimately provide the possibility of reaching closer to the absolute zero of temperature than is possible by any other means now known.

We have already noted under *Applied Physics* the effect of X-rays on the elastic properties of crystals. A somewhat similar effect is announced by E. N. daC. Andrade in *Nature* for July 28. He suspended a metal wire under sufficient tension so that it showed a creep or increase in length with time of same 0.05 per cent per minute. He then bombarded a part of the wire with alpha particles and showed that the rate of creep was increased about 5 times. It seems a simple thing and yet it may have profound consequences for our understanding of what goes on in the surface of metals under stress.

Nuclear Physics.—The public will undoubtedly hear more in the near future about the new fission elements, neptunium and plutonium, discovered in connection with the atomic bomb. For the present one can only refer for details to *Atomic Energy for Military Purposes* by H. D. Smyth. (Cf. list of books at the end of this review.)

The betatron of Kerst is proving to be a very useful instrument. It may be recalled that it produces very high speed electrons which can then be used to provide high energy X-rays of controlled maximum frequency. In the *Physical Review* for January 1945, G. C. Baldwin and H. W. Koch of the University of Illinois report on the use of the X-rays from the betatron to disintegrate nuclei by what may properly be called the nuclear photoelectric effect. In the ordinary photoelectric effect as used in a photocell, visible light falling on a metal surface causes electrons to be emitted. In the nuclear photo effect, invisible light of very high frequency (i.e. X-rays) striking a substance will actually penetrate the nuclei of atoms of the sustance and release neutrons, at the same time transforming the atoms into new ones, generally radioactive in character. Thus by the agency of X-rays of 19 million electron-volts energy ordinary carbon of atomic weight 12 is transmuted into a radioactive form (an isotope) with atomic weight 11 but with the same nuclear charge. Iron, copper, zinc among others yield radioactive isotopes with half-lives ranging from 9 to 39 minutes when radiated with X-rays with energies in the range from 11.6 to 14 million electron-volts. There is every reason to believe that nearly all nuclei can be disintegrated by this process with available betatron energies.

G. Groetzinger, P. G. Kruger and L. Smith of Illinois report new advances in the artificial production of a new type of neutral (i.e. un-

charged) radiation from a cyclotron. This radiation is more penetrating than neutrons in water or gamma rays in lead. It appears to consist of uncharged particles of mass smaller than that of a neutron. The investigators are inclined to think of it as an uncharged mesotron. It will be recalled that the ordinary mesotron (also called meson) is the particle found in cosmic rays with negative charge equal to that of the electron but with a mass about 180 times that of the electron. The physicists, Sirkar and Bhattacharyya, in India have recently found evidence for the existence of such neutral mesotrons in the cosmic rays themselves. The "neutral" observer may be pardoned for coming to the conclusion that there are getting to be too many of these particles! The interested reader will find the relevant material fully reported in the current files of the *Physical Review.*

Book List, 1945.—Auger, Pierre, *What Are Cosmic Rays?* (Chicago, University of Chicago Press); Bush, Vannevar, *Science—The Endless Frontier* (Washington, United States Government Printing Office); Eve, A. S., and Creasey, C. H., *Life and Work of John Tyndall* (London, Macmillan and Company); Hadamard, Jacques, *The Psychology of Invention in the Mathematical Field* (Princeton, Princeton University Press); Hawley, Gessner G., *Seeing the Invisible* (The Story of the Electron Microscope) (New York, Alfred A. Knopf); Rayleigh, Lord, *Theory of Sound* (re-issue of the latest edition with a historical introduction by Robert Bruce Lindsay) (New York, Dover Publications); Schrödinger, Erwin, *What is Life?* (New York, Macmillan); *Science in Progress* (fourth series of Sigma Chi Lectures) (New Haven, Yale University Press); Smyth, H. D., *Atomic Energy for Military Purposes* (Princeton, Princeton University Press).

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PICCIRILLI, Attilio, American sculptor: b. Massa, Italy, May 16, 1868; d. Bronx, New York City, Oct. 8, 1945. A member of the well-known sculptural firm of Piccirilli Brothers, Attilio Piccirilli was the sculptor of the Maine Monument entrance of Central Park, the doors for the International and Italian buildings, and the frieze for the Time and Life Building, Rockefeller Center, all in New York City, and the Marconi Monument in Washington, D.C.

Piccirilli first came to the United States as a boy, went back to Italy to study at the Academia San Luca in Rome, and returned to the United States in 1888. He served as assistant to various New York sculptors until 1898, when he executed the MacDonough Monument in New Orleans. He won medals at the expositions in Buffalo, Charleston, St. Louis, San Francisco; also the Saltus Medal of the National Academy of Design and the Busch Prize of $1,000 at the Grand Central Galleries. In 1931 he completed a bust of Thomas Jefferson which was placed in the State Capitol in Richmond, Va., and the next year he was awarded the Jefferson Presidential Medal. Founder and president of the Leonardo da Vinci Art School in New York City, Piccirilli had been a former president of the American Italian Art Association. He was elected to the National Academy in 1935.

PIG IRON. See IRON AND STEEL.

PITCAIRN ISLAND. See WESTERN PACIFIC ISLANDS, BRITISH.

PLANT QUARANTINE. See AGRICULTURAL RESEARCH ADMINISTRATION.

PLASTICS INDUSTRY. Until V-J Day the plastics industry maintained a high production level in the fulfillment of goods and services for the armed forces. From that period to the end of the year, plans for reconversion were put into effect to serve the normal peacetime requirements. With the end of the war, secrecy restrictions upon a number of articles were lifted and for the first time some of the lesser known but highly important roles of plastics in the war effort were revealed. These are discussed more fully in the section devoted to new applications.

In compliance with limitations upon travel, the national plastics societies did not hold their usual national meetings during the first half of the year, though normal activities were resumed before the year ended. Activity among local sections in the East and Far West was quite in evidence, and processes and materials which were the subject of earlier discoveries were thoroughly aired. The Society of the Plastics Industry began publication of the various chapters of their technical *Handbook* prepared by their technical committee, chapters which will serve as a guide to those using plastics and as an authoritative background for others inquiring into activities of the plastics industry.

Material Developments.—Due to the complete changeover from war to peace the production figures for plastics underwent an appreciable change—though immediate outlets were found for orders for articles in the home, industrial, decorative, and novelty fields which had been accumulating for many months. There was no one single group of high polymers introduced during 1945, which had not been observed and applied in previous years, though several that were first introduced in 1944 enjoyed extensive commercialization. The laminating materials prepared from polyester resins continued to attract considerable attention and appreciable work was accomplished and still is being performed in their application to structural elements. Radar housings for aircraft were especially prominent, and when manufactured in combination with low density cores, exceptionally good results were attained from a strength-weight standpoint. One manufacturer found it possible to develop a foam material *in situ* between two low pressures, glass cloth reinforced, and laminated skins. The patent gazettes were replete with developments in low pressure laminating materials and the polyesters resins took a prominent position. Many of these developments have been pending for several years, and the disclosure by the patent office threw some light on the technical background leading to their formulation.

Phenolic resins were recommended as coatings for the bonding of rubber to metals and as softening agents in the preparation of special rubber stocks—indicating still further outlets for this highly versatile plastic material. Semicommercial quantities of 3,5, xylenol made it probable that another phenol would be available to the plastics industry. A rather unusual application of phenolic plastics was revealed in powdered lead, phenolic binders for a transfer molded frangible bullet employed for gunnery practice. The slug is hard enough to be fired through a rifle barrel, but soft enough to disintegrate on reaching its target, leaving a telltale mark. Keratin protein, obtained from feathers, hair, and hoofs was revealed to be a useful modifier for phenolic plastics—yielding better arc resisting materials.

The silicon resin continued to attract much attention and many new uses were developed from these materials. A silicon rubber product proved to possess the highest temperature resistance of any rubber-like material yet developed. The chemical journals revealed a new

technique of synthesizing silicon resins through direct reaction of alkyl halides upon powdered silicon at high temperature, in the presence of copper.

Greater quantities of styrene-butadiene copolymers were made available, in which a higher proportion of styrene was present. The properties of this product lay intermediate between the copolymer widely used for the production of synthetic rubber tires, and the harder polystyrene employed for molding purposes. Experimental quantities of divinyl benzene and diethyl vinylbenzene became available—and will probably play an increasingly important role as a cross-linking agent for higher temperature resistant polystyrene compounds.

Proteins came in for their share of attention, and national advertising began to feature dress goods prepared from "Aralac", obtained from casein. This material began large scale commercial production and is destined to enjoy wide distribution in the textile industry. Another naturally occurring resin, "Vinsol", was the subject of research at the Bureau of Standards, coming in as an addition product to cement, and included for its air entraining properties.

Further developments of polysulphide rubbers revealed a new molding compound which can be pulled from the mold hot, and exhibit the flow characteristics of a thermosetting material. When cold it retains its rubber-like qualities however.

Process Developments. — During the latter months of 1944 and the beginning of 1945, considerable attention was given to the art of free-blowing canopies of transparent acrylic plastics. This technique does not employ a fixed male or female mold, but utilizes air pressure alone to expand a heated sheet of acrylic to the desired contour. Excellent optical properties were realized unmarked by any surface imperfections. Many of the leading fighter aircraft were equipped with free-blown canopies of transparent plastics.

Developments in blowing plastics moved forward rapidly, resulting in the development of special injection machines which forced a controlled quantity of thermoplastic material into a die, where it could be blown to a desired shape. Vertical injection molding machines came in for their share of attention, promising to augment the equipments now in current use. At the end of the year, there was a pronounced trend towards small 1-oz. laboratory injectors, and many of these types were produced by machine manufacturers.

The development of post forming of thermosetting laminates received special commendation in the award of the Hyatt medal to W. Beach for this outstanding contribution to the art. Post formed laminates were beginning to find their way into luggage, trays, boxes, and industrial parts of every description at the end of the year.

New Applications.—Contributions of plastics to the development of rockets were cited in the latter part of 1945 by directing attention to various igniter strips, fusee containers, launching tubes, etc. which had been prepared from these materials. Binders for explosives have also been an important role of certain plastics materials.

The completion of the largest airplane in the world, the Hughes *Hercules*, was a tribute to the skill of the cabinet makers and wood technologists who contributed to its production. With a wing span of 320 feet it represents an ambitious undertaking. Prominent throughout its assembly were the various thermosetting plastic type adhesives.

Synthetic resin paints with special lead salts were revealed to have substantially solved the barnacle problem upon the larger naval vessels. This saved many hours of scraping when undergoing repairs and insured maximum efficiency in operation at sea.

Plaster of paris forms came in for their share of attention when techniques were developed for the commercial impregnation of these forms with furane resins. The plaster parts were converted to very hard, durable structures through treatment with these plastics.

The plastics industry has now an opportunity to put the lessons well learned during the war into skillful peacetime practice. See also CHEMISTRY; ELECTRICAL AND ALLIED DEVELOPMENTS.

JOHN DELMONTE,
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PLUMS. California and Michigan are the only states credited with commercial plum production by the United States Department of Agriculture. On October 1, California's 1945 crop was estimated at 71,000 tons, and Michigan's at 2,200 tons. In 1944 California produced 92,000 tons and Michigan, 6,200 tons.

PLUTO. See ELECTRICAL AND ALLIED DEVELOPMENTS OF 1945.

PODKARPATSKA. See RUTHENIA.

POLAND. A country of central Europe, reestablished as an independent republic in 1918 following the First World War after having been partitioned among Germany, Russia, and Austria-Hungary from 1772 to 1918. As restored, Poland had an area of 150,470 square miles, and an estimated population of 34,775,698 in 1939. Of this population, about 68 per cent, or 21,993,400, were of Polish origin. The remainder were largely Ruthenians and Ukrainians, 4,441,600; Jews, 2,732,600; White Ruthenians, 989,900; Germans, 741,000; and Russians, 138,700. About 27 per cent of the population lived in cities and towns while 73 per cent lived in villages. More than 60 per cent earned their livelihood by agriculture, and 25 per cent by industry and commerce. Capital: Warsaw, pop. (1939) 1,289,000. Other principal cities are Lodz, 672,000; Lwów, 318,000; Poznan, 272,000; Cracow, 259,000. A partition of revived Poland (the fourth dismemberment in less than two centuries) was made a month after Germany began the Second World War by invading Poland on Sept. 1, 1939. According to the terms of their treaty of September 29, Germany and Russia divided Poland between them, Germany receiving approximately 72,866 square miles, and Russia 77,620 square miles. Soon after Germany launched her attack of June 22, 1941, against Russia, the German Army drove the Russians out of their area and occupied all Poland. But by March 1945 the Russian armies in their victorious counteroffensive had expelled the German forces from the entire country.

Constitution and Government.—The constitution of the new Polish Republic, as adopted in 1921, divided the powers of government into three branches—executive, legislative, and judicial. It provided for a bicameral National Assembly or Parliament composed of a Diet (Seym) and a Senate; a president, elected by the assembly for seven years; a Council of Ministers; a Supreme Administrative Tribunal; and various other offi-

cers and departments. Executive power was vested in the president and Council of Ministers. The president of the council, jointly with the president of the republic and the particular minister concerned, were required to sign every law passed by the assembly. The head of the republic was the head of the army in time of peace and he had power to call, adjourn, or dissolve Parliament with the concurrence of both houses and, with the consent of the Diet, to declare war and make peace. All legislative power was vested in the Parliament. Judicial control was vested in the courts, the judges being appointed by the president of the republic. In 1934 the constitution of 1921 was altered for the purpose of strengthening the prerogatives of the executive branch, especially those of the president. After June 20, 1940, for the remaining period of German occupancy, the Polish government in exile had its seat at London. The Polish Committee of National Liberation in Lublin on Dec. 31, 1944, declared itself the provisional government of Liberated Democratic Poland, with Boleslaw Bierut as president. On Jan. 18, 1945, the Lublin provisional government entered Warsaw. In February at the Yalta (Crimea) Conference the hope was expressed that this government would be reorganized on a broader basis to include democratic leaders in Poland and from among the Polish exiles. Neither the London nor the Lublin government was invited to attend the San Francisco Conference. Correspondents continued through the year to find the Polish government, as constituted, completely dominated by Russia and hostile to political liberty.

Education.—Illiteracy was one of the big problems that confronted the republic whose adult population was over 60 per cent illiterate. Within the first 10 years of independence Poland reduced illiteracy to 23.1 per cent; at the outbreak of the Second World War it did not exceed 18 per cent. In 1938–39, Poland had 28,881 elementary schools with 91,224 teachers and 4,953,000 pupils; 789 secondary schools with 234,200 pupils; 74 teachers colleges, with 6,600 students; and 764 professional schools with 1,319 departments (including dental, mining, agriculture, veterinary, art, commerce) and 106,415 pupils. In recent years education was free and compulsory; secondary education was raised and standardized; and the 5 universities among them the University of Cracow (founded, 1364) were rapidly developed and modernized. The new republic also raised the professional qualifications and remuneration of teachers, their status and salaries being fixed by law as were those of judges and other public officials.

Religion.—The predominant religion is Roman Catholic, but no legal restrictions were imposed on other faiths. At the census of 1931, the population of Poland (31,915,000) consisted of 64.8 per cent Roman Catholics, 10.4 per cent Greek Catholics, 11.8 per cent Orthodox Church, 9.8 per cent Jews, 2.6 per cent Protestants, and .6 per cent members of other religions.

Agriculture, Mining and Industry.—Poland is primarily an agricultural country, and an immense agrarian problem was among the republic's heritages from its long tri-monarchial maladministration. The Land Reform Bill, passed in 1920, and the creation of a Land Department to engineer, and a state bank to finance the project of agrarian reform, indicate the seriousness of Poland's land problem and the energy with which it was attacked. While the Land Bill has undergone repeated modification since its enactment, its essential plan and purpose were to distribute, with state compensation to private owners, large estates, particularly those uncultivated or neglected, among landless Polish peasants for actual occupancy and use. By 1927 from 60 to 70 per cent of Poland's productive land was in the hands of small owners, none of whose shares exceeded 200 acres, and all arable land was under actual cultivation.

In mining, Poland ranked low in its preindependence days, but its acquisition in 1921 of Polish Upper Silesia, with coal beds that are among the richest in the world (estimated at 63,901,500,000 metric tons), transformed it from a net importer of coal (10,000,000 tons annually before the First World War) to the second largest coal exporting nation of Europe, after England, and the fourth largest European coal producer (over 37,500,000 tons in 1930) after England, Germany and France.

Industrially, too, Poland made great progress after its independence. While state credits greatly stimulated Poland's industrial boom in the earlier years of its independence, ever-increasing home and foreign markets (the latter largely offsetting the loss of Soviet Russian trade) made artificial stimulation of industries unnecessary. Under these circumstances, and aided by commercial treaties, Poland's further industrial development seemed assured. Manufacture of agricultural implements, machine tools, as well as oil refining were flourishing industries, while salt, potash, iron ore, and zinc ore were among the other products of importance. The principal industry, however, was textile manufacturing, which employed (1937) 2,751,800 spindles, and 57,700 looms.

Principal Events.—As a prelude to the great Soviet winter offensive that was to free all of Poland from the Nazi rule, Moscow on Jan. 5, 1945, recognized the provisional government formed on New Year's Eve by the Polish Committee of National Liberation in Lublin. This unilateral move, promptly repudiated by the Western Allies, further sharpened the diplomatic issue born from the antithesis between London and Lublin Poles. Inter-Allied tension over this knotty problem continued to rise as the liberation of Poland swiftly progressed and the provisional government established itself in Warsaw, following the capital's fall on January 17. Despite the continued support of Britain and the United States, however, the Polish government in exile in London was doomed by its inability to influence the course of events in the homeland, while the rival regime in Warsaw vigorously partook in the final expulsion of Nazi forces and in the setting up of a new national administration.

One of the most regrettable results of this "unhappy spectacle of rival governments in Poland, one recognized by the Soviet Union, and the other firmly adhered to by the Western powers," (Prime Minister Winston Churchill) was to leave Poland without representation at the United Nations Conference at San Francisco. A Soviet request that the Polish provisional government (unrecognized at the time by any major power save Russia) be invited was turned down by London and Washington, late in March, but neither did the government in exile receive an invitation. It was agreed, though, that Poland's position as a charter member of the new world security organization would be safeguarded despite her absence from the conference.

There was also agreement in principle between Russia and the Western Allies that a new

Polish government combining elements of both the London and the Lublin factions should be formed, in accordance with the decisions taken at Yalta, but negotiations to this effect made only slow progress. A great step forward was taken when former Premier Stanislaw Mikolajczyk, principal spokesman of the conciliatory wing of the London Polish group, on April 15, unequivocally endorsed the Yalta formula despite protests from the Arciszewski government.

Meanwhile, however, a new disturbing element had arisen. On April 6, it was learned that 16 Polish underground leaders, including in particular Jan Jankowski, vice premier of the London Polish government, and Gen. Bronislaw Okulicki, commander of the Home Army, had disappeared after a meeting with Red Army officers. The mystery was not cleared up until May 3, when Soviet Foreign Commissar V. M. Molotov, disclosed at a Big Three meeting in San Francisco that the missing Poles had been arrested on charges of "diversionist activity" behind the Red Army lines. American and British diplomats reacted sharply to this disclosure, the more so as the arrested Poles apparently had been assured of safe conduct when meeting the Red Army authorities. The incident caused a temporary suspension in conversations aimed at the formation of a Polish government of national unity.

The situation was not improved when Russia on April 21, signed a treaty of friendship, mutual assistance, and postwar collaboration with the Polish provisional government, without awaiting its recognition by the other Allies. The accord was completed within 48 hours of the arrival in Moscow of the two principal leaders of the Lublin group, President Boleslaw Bierut and Premier Edward Osubka-Morawski.

Despite these setbacks, negotiations for a new Polish government continued and substantial progress was made after the arrival in Moscow of President Truman's special emissary, Harry Hopkins. As a direct result of Mr. Hopkins' endeavors, an invitation was sent on June 12, to the moderate wing of the London Poles and democratic leaders of the Polish underground to come to Moscow for discussions. On June 15, S. Mikolajczyk and Jan Stanczyk, Socialist miners' leader, flew to Moscow from London, but the most prominent of the leaders from inside Poland, Wincenty Witos, was too ill to attend the conference. After a good start, the conference temporarily was put in jeopardy by the trial and conviction of General Okulicki and associates before a Moscow military court, but the comparatively mild sentences imposed and a promise of ulterior amnesty saved the situation. On June 23, formation of the long-awaited Polish national government was announced with Osubka-Morawski as premier and Mikolajczyk as vice premier. The vast powers normally exercised by the president of the republic were vested in a three-man council composed of Bierut, Witos, and Prof. Stanislaw Grabski of the London group. By general agreement, the new government was representative of all Polish factions except the relatively small group in power in London.

As a result, Britain and the United States let it be known, on June 23, that they would withdraw recognition from the Arciszewski regime and recognize the new administration in Warsaw as soon as the latter had pledged itself to the holding of free elections. After fulfillment of this condition, recognition was formally extended on July 5; Arthur Bliss Lane was appointed American ambassador in Warsaw. France and Sweden had recognized the new Polish Government a week earlier and most of the other powers followed the lead of the American and British governments. The Polish regime in London protested in vain against these developments and made strenuous attempts to withhold funds and the control of the 200,000 Polish soldiers serving with the Allies from the Warsaw government. Open opposition was offered in particular by the Polish High Command but British authorities handled the situation firmly and skillfully. On August 19, Jan Stanczyk, Polish minister of social welfare, predicted that eventually all but some 500 of the more than 1,000,000 Poles stranded in Europe would return to their homeland.

On August 16, Russia and Poland signed a treaty in Moscow, fixing the new frontier between the two countries and sharing the compensation to be exacted from Germany for damages caused by the Nazi occupation. The frontier settlement agreed upon followed by and large the earlier delimitation along the Curzon Line, with minor territorial concessions for Poland in various places. The accord was signed by Premier Edward Osubka-Morawski for Poland, and by Foreign Commissar V. M. Molotov for the USSR.

Under the terms of the reparations agreement, Russia promised to turn over to Poland 15 per cent of all reparation deliveries from the Soviet zone of occupation in Germany collected in the period after the Berlin conference; and 15 per cent of the industrial capital equipment received by Russia from the western zones of occupation.

In return, Poland agreed to deliver to Russia 8,000,000 tons of coal in 1946, 13,000,000 tons each year during the next four years, and 12,000,000 tons for each further year of the occupation of Germany. In order to facilitate the execution of this contract, the Polish government assigned 50,000 German prisoners of war to work in the Silesian coal mines.

Poland's economic recovery made more rapid progress than in most other countries formerly occupied by the Germans. This was primarily due to the surprisingly good condition in which the Silesian industrial region was taken over by the Poles as a result of the swift Soviet conquest which left the retreating Germans no time for a thorough wrecking job.

An official survey released on Sept. 1, 1945, indicated that coal production would reach 36,500,000 tons by the end of the year and that zinc production was expected to reach 75,000 tons a month, or 39 per cent more than the prewar average. The steel output also was rising steadily.

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POLICE TRAINING AND EDUCATION. Programs for the training and education of police went forward in 1945 at accelerated pace. The necessities imposed by war conditions are mainly responsible for this fact. They could not have been effective but for their recognition by the Federal Committee on Social Protection, the F. B. I. and other agencies including awakened and intelligent police forces throughout the country.

In many police departments, and especially in schools that are established in colleges and universities, the police are receiving substantial in-

struction from very competent men in the law of arrests and in criminal procedure. Officers who are in daily touch with the actual problems of criminal law are, as a rule, responsible for giving the instruction. This is a distinct advance over mere training in techniques. Within the year publications by the commanding officer of the Legal Bureau in New York City Police Department and his second in command have for the first time made authoritative and considerably detailed information on the subject available to the police generally.

The stages in criminal prosecution; direct and circumstantial evidence; presumption; presentation of evidence; burden of proof; the hearsay rule and its exceptions in dying declarations and in *res gestae* (statements that are made at the time of a crime and that are regarded as a part of the event); confessions and admissions; opinion testimony; the distinction of crime as an act that is wrong in itself from an act that is merely prohibited by law; intent and motive; principals, accomplices and accessories; what manner of person is liable; attempt; entrapment; when prosecution may be initiated; double jeopardy; withdrawal of a complaint and compounding a crime; all these are recommended as topics to be included in a course for police officers on the law of arrests. A serious attempt is being made to cover the area indicated by these topics even though the war made it necessary to telescope a good many courses of instruction. The start that has been made in this direction is expected to be enlarged now that peace has come.

It is significant of a new attitude among police forces that the teaching of the law of arrests is intended to keep alive an awareness of the rights and privileges of individuals in a democratic pattern of life. To this end it includes instruction that relates not only to the circumstances in which arrests may be made, but also to those in which arrests may be avoided to the advantage of the individual concerned and for the protection of the community as well. Thus, it is described as better policy to get the co-operation of a landlord toward removing a morally undesirable tenant, or toward improving a situation that contributes to moral contamination, than to arrest the landlord because he has such a tenant on his premises.

This is a recognition of the preventive function of the police that has lately been coming to the front. For example, Cleveland College offers a course in crime prevention in which 50 police women were enrolled early in the year and a six week's school for state and municipal police women of Connecticut was opened at the Bethany State Police Barracks in April. Preventive police work is being fostered, also, through a new association between Syracuse University in New York and the police department of the city. The same movement is observed in Boston where the Boston College School of Social Work has enrolled 13 police women in its course in social services.

The coming of peace is expected to bring an immediate revival of instruction in police science and administration in certain institutions in which it was interrupted by the outbreak of the war. Moreover, steps have already been taken toward offering such instruction in new areas. For instance, the attorney general of the State of California and the State Peace Officers Association are supporting the application of the University of Southern California for means to establish a Crime Prevention Training Program to be modeled after the Northwestern University Traffic Safety Institute in its field of activity. In other words, if the application should be successful, officers will be selected for enrolment on a competitive basis from all parts of the country. A larger or smaller group will be in attendance and under instruction during a period (three months if the institute is to be exactly copied) and be followed by another and still another group throughout the year.

The Department of Police Science and Administration in the Washington State College at Pullman, Wash., continued its activity unabated throughout the period of the war. It even increased the scope of its work. Recently its director, aided by young men and women enrollees, completed a city-sponsored survey of Seattle and made recommendations for reorganization within the police department.

There are definite signs that police training schools are not always to limit their function to giving instruction and training directly to enrolled officers, but are to extend it to the general public. For several years educational programs have been directed by these schools to the task of improving the habits of pedestrians in the streets. A Pedestrian Safety School is a feature, for illustration, of Portland, Oreg. Citations for careless crossing of streets are tickets of admission to the school. Attendance is required during one hour only on the first Tuesday evening following the date of the citation on pain of having to furnish bail or to appear in court.

Northwestern University Traffic Safety Institute in May 1945, for the first time, offered a five day Motor Vehicle Fleet Supervision course. Fifty supervisors were enrolled from the Chicago areas—Wisconsin, Iowa, Minnesota, Indiana, and Pennsylvania. They were representatives of trucking, insurance, oil distributing and other companies. The object of the course was to promote co-operation with law enforcement agencies in respect to driver qualifications, fixing accident responsibility, safety plans, etc. Movements of this nature are enlarging in the police a sense of social responsibility for more than just arresting criminals.

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PORTLAND CEMENT. See CEMENT.

PORTUGAL. Formerly a monarchy, now a republic under a virtual dictatorship, continental Portugal, on the west coast of the Iberian Peninsula, has an area of 34,254 square miles, and with the Azores and Madeira (islands), which form provinces of the republic, an area of 35,490 square miles. Pop. (1940), 7,722,152. Lisbon, the capital and largest city, has a population of 709,179; Porto (Oporto), 262,809; Funchal, 48,493; Coimbra, 35,437; Setúbal, 35,071. Other cities are Braga, Évora, Ponta Delgada, and Faro.

The Republic of Portugal was proclaimed in 1910, following a revolution which forced the royal family into exile. A new constitution, adopted in 1933 provides for a dictatorship on a corporative basis, and a president elected for seven years. A Privy Council of 10 members, advises the president, and a Corporative Chamber functions alongside the National Assembly. Dr. Antonio de Oliveira Salazar, who was chiefly responsible for the Constitution of 1933, has been virtual dictator of Portugal since 1932, when he became premier. In 1936 he also assumed the offices of provisional minister of war,

and of foreign affairs. Gen. Antonio Oscar de Fragoso Carmona has been president since Nov. 29, 1926, having been last elected Feb. 8, 1942.

Finances.—Portugal's budget for 1944 authorized total expenditures of 3,768,406 escudos (the escudo equaled $0.037 in U.S. currency in 1940), as compared with 3,984,615 escudos in 1943. Estimates of revenue are fixed at 3,769,351 escudos, as compared with 4,047,390 escudos in 1943.

Education.—Though compulsory education has been in force in Portugal since 1911, the 1940 census showed that only 43.23 per cent of the population could read and write. In 1941–42 there were 10,481 primary schools in operation with 546,790 pupils and 13,882 teachers. In private elementary schools in 1941–42 there were 45,086 pupils, making a grand total of 591,876 pupils receiving primary instruction in that year. Secondary education is supplied by *liceus* and by schools of technical instruction. There were 43 *liceus* with 15,877 pupils and 1,047 teachers; and 59 professional schools with 35,492 pupils and 1,150 teachers. In addition, 17,886 pupils attended private secondary schools, and 2,429, private technical schools. There are 8 vocational education schools with 1,724 students and 162 teachers. For higher education there are 3 universities—at Lisbon, at Coimbra, and at Porto—with a combined enrolment (1940–41) of 6,620 students. There are also special schools for music, art, commerce, and industry.

Religion.—The predominant religion is the Roman Catholic, although freedom of worship is permitted. Including the Azores and Madeira, there are 6 ecclesiastical provinces, with sees at Lisbon, Braga, and Évora, Loanda (Angola), Lourenço Marques (Mozambique), and Goa (Portuguese India). On May 7, 1940, a new concordat was signed with the Vatican, extending certain privileges of the Portuguese Church in the Far East.

Defense.—Military service is compulsory from the age of 20 to 48, consisting of 6 years of active service, 16 years in the active reserve, and 6 years in the territorial reserve. Peace strength in January 1940 was 3,200 officers and 26,800 other ranks, exclusive of 330 officers and 11,000 other ranks in the overseas garrisons. There is also a Republican Guard (220 officers and 5,500 other ranks), a Fiscal Guard (100 officers and 5,000 other ranks) and a voluntary force (3,400 officers and 49,000 other ranks). The navy consists of 6 sloops, 5 destroyers, 6 gunboats, 3 submarines, 1 sailing training ship, 3 surveying vessels, 3 river gunboats, 1 oiler, and 9 auxiliary service ships. Naval personnel on Dec. 31, 1941, included 757 officers and 5,482 other ranks. There is a military and naval air service.

Production and Industry.—Portugal's leading occupation is agriculture, followed by forestry (cork, naval stores, and mine pit-props are the principal products), and fishing. In 1941 a total of 479,500,000 kilowatt-hours of electricity was produced, a 4.2 per cent increase over 1940. A plan was adopted in 1945 to increase the output of electrical energy by more than 300 per cent within the next eight years. Production of a variety of goods for domestic and colonial consumption has been expanded in recent years. Since 1933, under the economic provisions of the constitution of that year, government control of production and distribution has been greatly extended.

Chief agricultural products include cereals, wine, olives and olive oil, almonds, figs and rice. Wheat is the principal cereal crop, although production is usually insufficient for domestic needs. Production of wheat in 1944 was estimated at 400,000 metric tons, as compared with an estimated 300,000 tons in 1943. Rye, barley, oats, and corn are also grown, almost exclusively for domestic consumption, and rice production has been expanded recently. Portugal is normally fourth among the countries of the world producing olives and olive oil, being exceeded by Spain, Italy, and Greece. In 1942 production of wine was 8,334,775 hectoliters (the hectoliter = 26.418 U.S. gallons) and of olive oil 417,894 hectoliters. Fruits and nuts are raised in sufficient quantities to supply domestic needs, among them almonds, figs, apples, grapes, oranges, walnuts, and chestnuts being most important. Figs are Portugal's most important fruit export. The 1943–44 fig crop totaled 14,000 tons. Almond production in 1944 was estimated at 10,500 metric tons (unshelled), an increase over the 1943 yield of 9,000 tons. Portugal is the world's leading producer and exporter of cork, and resin and turpentine are also important, as are exports of mine pit-props to Great Britain.

The leading manufacturing activities are the production of cotton textiles, shoes, cement, glass and porcelain tiles, lime, fertilizers (mostly superphosphates), paper, household wares, soap, chinaware, agricultural implements, cork wares, tiles, nails and hardware, sardine canning, and the refining of sugar and olive oil.

Fisheries.—Fishing is one of the principal industries. In 1943 there were 39,974 men and boys employed, with 15,205 boats. The sardine catch (the leading fish catch) was 132,923 metric tons, as compared with 74,000 tons caught in 1942. Portugal also has built an important and increasing codfishing industry.

Minerals.—Although valuable mineral deposits exist in all the provinces of continental Portugal, mining operations are not extensive, and until recently the resources have been incompletely exploited owing especially to inadequate electric power and transportation. Copper pyrites are found extensively in southeastern Portugal, while tin and tungsten ores are found in the eastern and northeastern sections. Substantial tonnage of coal, sulphur, and kaolin are produced from long-established mines; and radium has been mined in Portugal since shortly after its identification. Manganese, lead, zinc, arsenical pyrites, marble, gypsums, and slate are found in varying quantities, but mining of these resources is as yet unimportant. Annual mineral production (in metric tons) reached the following figures in 1943: cuperiferous pyrites, 109,994; copper (precipitated), 278; coal, 498,808; kaolin, 2,145; wolfram, 5,671.

Anthracite coal production during the first quarter of 1945 was 96,855 metric tons as compared with 100,274 metric tons for the same period in 1944. The lignite output for the first three months of 1945 was 25,902 metric tons compared with 30,701 metric tons for the corresponding period in 1944.

Communications.—The total railway mileage in Portugal in 1943 was 2,224, of which less than half were state-owned. Highway mileage totaled 15,602; annual expenditures for highway construction and maintenance amount to about $5,000,000. In addition to the highways and railroads there are 11 rivers which are navigable for various distances, the most important being the Tagus, the Duero, and the Guadiana. The Portuguese merchant marine in January 1943

consisted of 945 ships of 315,534 tons, mainly employed in the colonial service. This is almost four times as many ships as Portugal had in 1939. Large purchases of ships were also made in 1943, including certain vessels formerly of German registry, interned in ports in Angola and Mozambique. During the dislocation of regular European airlines caused by the war, Portugal became the outstanding air traffic center in Continental Europe. The new Lisbon airport was opened in December 1942. It is especially important as a base for transatlantic air passenger and mail service between Europe and North and South America. In 1942 Portugal had 8,389 miles of telegraph lines; and 118,750 miles of telephone lines, of which 32,541 were state-owned and 86,209 miles were owned by Anglo-Portuguese interests. There were 32 wireless stations.

Foreign Trade.—Portuguese trade consists of three main branches: imports for domestic consumption; exports of national or nationalized products; and the transit trade, which normally consists of foreign goods to be shipped to the Portuguese colonies and re-exports of colonial goods to foreign countries. In 1942 imports amounted to 2,476,523,630 escudos and exports to 3,938,866,153 escudos, and in 1943 to 3,341,383,269 escudos and to 4,034,902,298 escudos respectively. (In November 1945 the escudo = $0.04055 in U.S. money.)

Principal Events.—On Jan. 29, 1945, Herman B. Baruch, brother of Bernard Baruch, was nominated United States ambassador to Portugal, replacing R. Henry Norweb. On February 9, Acting Secretary of State Joseph C. Grew stated that the United States was "not satisfied with the attitude of a number of neutral governments," concerning the possibility that their countries might be used as havens of refuge by Nazi war criminals. Mr. Grew's statement confirmed the declaration which former Secretary of State Edward R. Stettinius, Jr. had made on Nov. 15, 1944, to the effect that Portugal's reply in regard to assurances against giving asylum to Nazi war criminals was "not entirely satisfactory." On February 25, it was reported that Portugal, along with Spain, Sweden, Switzerland, and Argentina, had been barred from the world conference on security at San Francisco, and three days later the government-controlled Lisbon radio stated that a belated declaration of war on the Axis would not have conformed to the Portuguese sense of national honor. "Mere participation in a conference," declared the Lisbon station, "is not worth the sacrifice of national dignity." Government officials in Washington on April 18 expressed satisfaction with Spain's action in forbidding all German planes to land on Spanish territory, and added that no satisfactory reply had been received to a similar request made to Portugal. On May 2, according to the United States Office of War Information, the Portuguese government ordered two days of mourning for the death of Adolf Hitler, and flags were flown at half-mast on all Portuguese public buildings. However, Portugal severed relations with Germany on May 6, stating that, because of war developments, "there no longer exists a German national government." The Lisbon radio announced the lifting of many war restrictions on August 25.

The first general elections held in Portugal in 20 years were won on November 19 by Premier Salazar's National Union Party, but these elections were boycotted by the opposition. On December 5, Fred M. Vinson, secretary, United States Treasury, lifted curbs on financial transactions with all foreign countries except former neutrals, including Portugal, and former enemies.

PORTUGUESE COLONIAL EMPIRE. Comprised, in Africa, of Angola, Cape Verde Islands, Portuguese Guinea, São Tomé and Principe, and Mozambique; and, in Asia, of Portuguese India, Macao, and of Timor. Total area, about 803,835 square miles; total estimated population (1940) 10,875,051.

Angola (PORTUGUESE WEST AFRICA).—A Portuguese colony on the west coast of Africa, south of the Belgian Congo area. Area: 481,351 square miles; pop. (1940) 3,738,010. Capital, Loanda; future capital, Nova Lisboa (Huambo). Chief products include coffee, wax, sugar, maize, vegetable oils, coconuts and palm oil. Exports in 1942 totaled 480,353,049 angolares, and imports 328,126,702 angolares. The 1944 budget was balanced at 331,424,000 angolares.

Cape Verde Islands.—Ten islands and five islets in the Atlantic Ocean, between 300 and 400 miles off the west coast of Africa, between latitude 15° and 18° N. Their total area is 1,557 square miles; population (1940) 181,286. The capital is Praia, on São Tiago Island. Chief products are castor oil, coffee, mustard, brandy, oranges, and hides. Imports in 1942: 68,642,614 escudos (special commerce); exports, 19,606,958 escudos (special commerce). The 1944 budget was balanced at an estimated 26,205,000 escudos.

Macao.—An island off the mouth of the Canton River, China, which together with the smaller islands of Taipa and Colôane forms a Portuguese province. The approximate total area is 6 square miles; population (1940) 374,737. The estimated revenue and expenditures balanced in 1944 at 53,617,000 escudos.

On Jan. 16, 1945, American planes accidentally bombed the Portuguese colony of Macao. The United States government officially expressed its regret and ordered an inquiry.

Mozambique (PORTUGUESE EAST AFRICA).—Colony south of Tanganyika Territory and north of Natal. Area: 297,731 square miles, population (1940) 5,081,266. The capital is Lourenço Marques. The chief products are sugar, corn, cotton, sisal, copra, and mining products. Exports in 1943: 469,768,000 escudos; imports, 561,798,000 escudos. The budget was balanced for 1944 at 658,524,000 escudos.

Portuguese Guinea.—Colony on the west coast of Africa; area: 13,944 square miles; population (1940) 351,089. The capital is Bissau. Chief products include hides, rice, oil, seeds, and wax. Exports in 1943: 97,470,000 escudos (special commerce); imports 95,286,000 (special commerce). Estimated 1944 budget balanced at 41,150,000 escudos.

Portuguese India.—A colony of Portugal comprising three settlements on the west coast of India; Diu, an island, with the mainland territories of Gocola and Simbor, on the coast of Gujarat; Damao (Damaun), an island, with the mainland territories of Dadara and Nagar-Aveli, on the Gulf of Cambay; and Goa, the largest settlement, on the Malabar coast, together with the islands of Angediva, São Jorge and Morcegos. The combined area is 1,537 square miles; population (1940) 624,177. The capital, in Goa, is Panjim (Nova Goa), on the estuary of the Mandavi River. The governor general is Col. José Ricardo Pereira. Revenue and expenditure

of the colony in 1944 was estimated to balance at 46,650,000 escudos. Portuguese India had (1938) 503 elementary schools, 12 secondary schools, a medical school, and a teachers' training college. While agriculture and fishing are the principal industries, large numbers are engaged at salt works in all three settlements, and manganese is mined on a fair scale near Mormugao, the principal port of Goa. The chief exports are coconuts and copra, fish (fresh and dried), spices, caju-nuts, and salt. Exports were valued in 1940 at 19,910,940 escudos, and imports at 102,018,420 escudos. Much of the trade is transit. A railroad of 51 miles connects Mormugao with the Deccan States.

Portuguese Timor.—Eastern portion of the island of that name in the Malay Archipelago, with the territory of Ambeno, and the neighboring islands of Pulo Cambing, and Pulo Jako, midway between Australia and Celebes, and about 700 miles southeast of Borneo. The area is 7,330 square miles; population (1936) 436,796. Chief products include coffee, rice, sugar, coconuts, sandalwood, wax, and copra. Imports in 1940 totaled 3,880,000 escudos, and exports 4,154,000 escudos. The estimated public revenue and expenditures in 1944 balanced at 9,430,000 escudos. Portuguese Timor was occupied by the Japanese in February 1942. The Portuguese government announced on Aug. 17, 1945 that Japan had agreed to return the Portuguese half of the island, and to surrender Japanese forces there.

São Tomé and Principe.—Two islands lying about 125 miles off the west coast of Africa in the Gulf of Guinea. Capital: São Tomé. The area is about 372 square miles; population (1940) 60,490. Chief products include cacao, coconuts, copra, palm oil, coffee and cinchona. Exports in 1943 totaled 55,307,000 escudos; imports, 25,780,000 escudos. The budget balanced in 1944 at 13,170,000 escudos.

POTASH. Production and sales of domestic potassium salts continued to increase and again set a new record in 1944, according to the United States Bureau of Mines. The total production for the year amounted to 1,578,498 short tons of marketable potassium salts containing 834,568 tons of equivalent potash (K_2O), as compared with 1,428,840 tons containing 739,141 tons of equivalent potash in 1943. Total sales in 1944 amounted to 1,543,420 short tons, and were a little more than 10 per cent over 1943. The contained equivalent potash (K_2O) in this material was 817,892 short tons, an increase of nearly 12 per cent over 1943. Stocks of potassium salts in terms of K_2O in producers' hands at the end of 1944 were more than double those of 1943 and were larger than in any recent year.

POTATOES. According to the Department of Agriculture, the 1945 potato crop of the United States came close to being a record one. The yield on October 1 was estimated at 435,395,000 bushels, as compared with the 1944 crop of 379,436,000 bushels and the 1934–43 average crop of 375,091,000 bushels. Maine retained first place in 1945 as the leading producer with a crop of 58,025,000 bushels. Idaho was second with 43,650,000 bushels; and California was third with 37,365,000 bushels, early and late. Every state in the Union is listed as a potato grower.

POTSDAM CONFERENCE. See WORLD POLITICS.

PRATT, Frederic Bayley, American educator and civic leader: b. Brooklyn, N.Y., Feb. 22, 1865; d. Glen Cove, N.Y., May 3, 1945. Retired president of Pratt Institute, which his father, Charles Pratt, founded in 1887. After serving as secretary to the board of trustees and as an administrative officer, he became president of Pratt Institute in 1923 and held this post until 1937 when he was elected chairman of the board of trustees. Mr. Pratt was a founder of the New York Museum of Science and Industry in Rockefeller Center, and its head from 1928 until 1935.

PRESBYTERIAN CHURCH IN THE UNITED STATES (South). This division of the Presbyterian denomination covers the territory commonly known as the Southern states. It was composed in 1945 of 17 synods (in most cases, corresponding to state lines) and 87 presbyteries, with 3,513 organized churches, 2,586 ministers and 580,369 members, exclusive of ministers. During the year 20,714 members were received on profession of faith, and 25,954 by certificate. There were 12,035 adult baptisms and 9,559 infant baptisms. The ruling elders numbered 18,659, and deacons 22,112. Contributions for current expenses during the year amounted to $5,721,307, for pastors' salaries $3,811,606, for building expenses $3,443,950, and for benevolences $5,656,925; a grand total of $18,633,788, an increase over the preceding year of more than $2,600,000. The total per capita gift was $32.10, of which $9.74 was for benevolences and $22.36 for current expenses.

The 85th General Assembly of the church convened in Montreat, N.C., May 24, 1945, with 365 commissioners present. Rev. Thomas K. Young, D.D., pastor of the Idlewild Presbyterian Church, Memphis, Tenn., was elected moderator. Actions taken by the General Assembly of special interest are as follows: the Committee on Co-operation and Union was instructed to continue "to explore and search in suitable ways and means of bringing into one body all branches of our Presbyterian family"; specifically to "endeavor to perfect as soon as practicable the plan for reunion of the Presbyterian Church in the United States of America and the Presbyterian Church in the United States." Overtures asking that the General Assembly withdraw from the Federal Council of Churches of Christ in America were answered in the negative. A goal of 50,000 won to Christ on profession of faith during the year was adopted enthusiastically. Much impetus was given to the work of the Committee on Radio by fixing a budget of $30,000 and by the approval of efforts to extend the *Presbyterian Hour* over a live voice network which would cover the territory occupied by our church.

This church continues to go far beyond its quota of chaplains in the armed forces with 151 in the army and 119 in the navy. This total is more than 10 per cent of all ministers in the church and 13 per cent of all ministers who are in active service.

Plans are being made for the rehabilitation of the Foreign Mission work in the Orient. All of the fields of this church were affected by the war because we had stations in Japan and Korea and in that part of China which was overrun by the Japanese.

Extensive plans have been drawn up for pushing Home Mission work in the areas where the sudden shift of populations has created critical situations.

Establishment of outposts or chapels will be pushed throughout the bounds of the church in an effort to take the Gospel to people who are not reached by the churches.

Training of recruits for the ministry and lay service is conducted in the four theological seminaries and the Training School for Lay Workers. Thirteen colleges controlled by synods and two affiliated colleges provide a Christian education for young men and women, who will be the future leaders of the church. Seven junior colleges, eight secondary schools and three mission schools (one for Indians and two for Mexicans) continue to render splendid service. Sixteen orphans' homes and schools take care of the needs of over 1,600 children.

The 1946 meeting of the General Assembly will convene in Montreat, N.C. on May 23.

REV. E. C. SCOTT,
Stated Clerk and Treasurer, The Presbyterian Church in the United States, Dallas, Texas.

PRESBYTERIAN CHURCH IN THE UNITED STATES OF AMERICA. The 157th General Assembly of this communion met in Minneapolis, Minn., May 24, 1945, in Westminster Presbyterian Church, which was the host of the assembly. The Rev. William Blakeman Lampe, D.D., of St. Louis, Mo., was elected moderator, and Ruling Elder President Charles J. Turck, of St. Paul, Minn., was appointed vice moderator.

Thirty-two overtures, together with other communications, reports, and papers were presented from various judicatories. The stated clerk, the Rev. William Barrow Pugh, D.D., presented the report of the Office of the General Assembly. The General Council submitted its 22d annual report approving a benevolence budget of $10,537,240, of which it is anticipated that $2,364,100 will be received from other than living sources.

The War-Time Service Commission reported that the campaign to raise over $1,250,000 had been more than successful, and the General Assembly authorized the raising of a total fund of $27,000,000, to be known as the Restoration Fund, which includes the continuation of the War-Time Service Fund for a period of five years, together with large sums for rehabilitation and reconstruction, and the stabilization of the Service Pension Fund.

The special committee on army and navy chaplains reported 425 Presbyterian chaplains in the army and 300 in the navy.

The 158th General Assembly was scheduled to meet in Atlantic City, N.J., on May 23, 1946.

STATISTICAL SUMMARY

Synods	40	Ministers dismissed	14
Presbyteries	268	Ministers deceased	211
Ministers	9,519	Elders	55,464
Licentiates	146	Deacons	26,956
Candidates	1,304	Churches	8,604
Ordinations	181	Churches organized	24
Licensures	191	Churches dissolved	60
Installations	662	Churches received	1
Pastoral dissolutions	631	Churches dismissed	2
Ministers received	46	Youth budget churches	1,665

COMMUNICANTS

ADDITIONS:		Whole number	2,161,872
Profession	104,170	Net increase	63,781
Certificate	61,244	Sabbath school members	1,257,454
Restored	12,351	BAPTISMS:	
LOSSES:		Profession	31,415
Dismissed	47,362	Infant	53,346
Suspended	40,105		
Deceased	25,264		

CONTRIBUTIONS TO CAUSES:	
Benevolences	$10,166,233
General Assembly, synods and presbyteries	482,670
Congregational expenses:	
Current	37,989,800
Special	11,030,312
	$59,669,015
Net increase	6,606,089

National Missions.—The Board of National Missions has under its control local church work, Sunday-school missions, community work, educational work, medical service, itinerant missionary work, evangelism, building, general promotion, etc. In 1944–45 the board received $3,099,082 and expended a like amount. Total assets amounted to $39,359,500; the value of properties owned is $10,812,518.

Foreign Missions.—The Board of Foreign Missions operates in China (eight provinces), Chosen (Korea), Japan, India, Africa, Latin America (seven countries), Iran, Philippines, Siam (Thailand), Syria and Iraq. In 1944–45 the board received $3,314,281 and expended $3,574,329. Total assets amount to $21,839,195.

Christian Education.—The Board of Christian Education is authorized to co-operate with 45 colleges, 10 theological seminaries, and 3 training schools, which are generally known as Presbyterian institutions. The receipts in 1944–45 were $1,095,529, and $1,085,134 was expended. The assets amount to $3,064,635.

Pensions.—Under a service pension plan, put into operation April 1, 1927, 3,684 pensioners received a total of $1,315,152, for the year ending March 31, 1945. According to this plan, a church pays into the Board of Pensions 8 per cent of its pastor's salary and the pastor himself pays 3 per cent (new rate commenced Oct. 1, 1942). The pension is payable upon retirement after attaining the age of 65 in proportion to the length of service, with a minimum of $600 if 35 years of service have been rendered. Income for the relief department from churches, individuals, and permanent funds, amounted to $424,900. Income from investments amounted to $1,520,234, and the total assets amount to $44,915,948.

HENRY BARRACLOUGH,
Manager, Administration Department, Office General Assembly, Presbyterian Church in the United States of America.

PRESBYTERIAN CHURCH OF NORTH AMERICA, United. A member of the family of Presbyterian Churches, of Secession and Covenanter origin, formed by the union in Pittsburgh, Pa., May 26, 1858, of the Associate and Associate Reformed Churches. The General Assembly of the church convened in Monmouth College, Monmouth, Ill., May 30, 1945, being the 87th meeting of this court. The outstanding feature of the meeting was the formal launching of The World Wide Christian Advance program in which the membership of the church will be asked to subscribe within a two-year period a fund of $2,310,000. The membership in America is 198,759, and in Egypt and India, 68,705. Contributions in America in 1944 amounted to $6,230,350, or an average of $31.35 per member. The officers of the denomination are: moderator, James M. Ferguson, D.D., Bellevue, Pa.; vice moderator, Albert E. Kelly, D.D., Santa Ana, Calif.; clerk, O. H. Milligan, D.D., Pittsburgh, Pa.; treasurer, R. L. Lanning, D.D., Pittsburgh, Pa.; executive secretary of the Board of Administration, T. C. Strangeway, D.D., Pittsburgh, Pa. Headquarters for this church are maintained in the Publication Building, 209 Ninth Street, Pittsburgh, Pa.

REV. ROBERT A. FOSTER,
Keokuk, Iowa.

PRIBILOF, or FUR SEAL ISLANDS. A group consisting of two main islands (St. Paul and St. George), two small uninhabited islands (Otter and Walrus), and several islets, all of volcanic origin, part of Alaska, situated in Bering Sea

about 200 miles north of the Aleutians and slightly west of Dutch Harbor. The total area is about 180 square miles. The population, which in 1940 was upwards of 500—mainly Aleuts, with a few United States government officials—was evacuated in June 1942 to the Alaska mainland, at the time of the Japanese incursion into the Aleutians, the Army remaining in charge.

The group is of great importance as the breeding place of the fur-seal, sea-bear, otter, and blue fox. To prevent reckless killing and herd extinction of the seals the islands were made a seal reservation in 1911 and put under the authority of the United States Bureau of Fisheries. In peace-time, the bureau gave work to the islanders and provided housing, food, clothing, medical care, and transportation. In 1941 the herd of fur-seals included 2,720,780 animals, about 85 per cent of the world's fur-seal population. In 1940 about 65,000 sealskins were taken. A thousand fox skins was the winter average.

PRICES AND PRICE CONTROLS. See INFLATION AND PRICE CONTROL; LABOR CONDITIONS IN THE UNITED STATES.

PRINCE, John Dyneley, American diplomat, linguist, and educator: b. New York City, April 17, 1868; d. there, Oct. 11, 1945. United States minister to Denmark from 1921 to 1926 and to Yugoslavia from 1926 to 1933, Dr. Prince was one of the world's leading linguists. Among the languages he could speak were French, German, Russian, Italian, Spanish, Portuguese, Danish, Swedish, Serbian, Hungarian, Czech, Polish, Bulgarian, Slovene, Slovak, Welsh, Icelandic, Gypsy, and Turkish.

Dr. Prince was graduated from Columbia University in 1888, studied at the University of Berlin from 1889 to 1890, and received his Ph.D. degree from Johns Hopkins University in 1892. He became professor of Semitic languages at New York University in 1892 and dean of its graduate school in 1895. In 1902 he joined the Columbia faculty as professor of Semitic languages, retaining this post until 1915. He served as professor of Slavonic languages at Columbia from 1915 to 1921 and again from 1933 to 1935, and as professor of East European languages from 1935 until his retirement in 1937.

PRINCE EDWARD ISLAND. Smallest of the Canadian provinces; area 2,184 square miles; pop. (1941), 95,047; principal cities (1941), Charlottetown, the capital, 14,460; Summerside, 4,978. The island lies at the mouth of the Gulf of St. Lawrence, and is separated from the mainland of New Brunswick and Nova Scotia by Northumberland Strait. It was discovered by Sebastian Cabot in 1497; first settled by the French, but taken from them in 1758; annexed to Nova Scotia, 1763; constituted a separate colony, 1769; entered the Confederation, July 1, 1873. It is governed by a lieutenant governor and a Legislative Assembly of 30 members, elected for 5-year terms, half by real property holders; half by universal male and female suffrage. The division, according to the election of Sept. 15, 1943, was: Liberals, 20; Progressive Conservatives, 10; total 30.

Education and Religion.—In 1943 there were in the province 454 schools, with 659 teachers and 17,179 pupils, exclusive of two Roman Catholic convent schools at Summerside and Charlottetown with 617 pupils. There are two colleges—Prince of Wales College, head of the provincial school system, and St. Dunstan's University (Roman Catholic), both in Charlottetown. Total expenditure for education Jan. 1, 1943–March 31, 1944, was $764,160.

In 1941 (latest available statistics) Roman Catholics numbered 42,743; Presbyterians, 14,724; United Church, 24,005; Baptists, 5,443; Anglicans, 5,739.

Finance.—The budget for Jan. 1, 1943–March 31, 1944, showed revenues of $3,072,460 and expenditures totaling $3,048,820. On March 31, 1943, the total sinking funds of the province amounted to $2,593,669; total liabilities on March 31, 1944, were $9,123,613.

Production and Industry.—Farm land occupied in 1943 totaled 1,334,400 acres; field crops in 1943 occupied 472,000 acres and were valued at $14,753,000. The leading crops were wheat, oats, barley, mixed grains, potatoes and hay. Livestock in 1943 included 27,340 horses, 46,300 milk cows, 54,300 other cattle, 56,000 sheep, 65,000 swine, 1,098,300 poultry. Silver foxes are extensively bred on the island, the pelts being shipped to the United States and European markets. The Canadian fur-farming industry had its origin in Prince Edward Island, and in 1942 the value of pelts sold in the province was $735,142. Fishing is relatively important, the landed value in 1943 being $1,869,266 and the market value $2,860,073. Oyster beds cover an area of about 20,000 acres in Richmond Bay. These beds are under control of the Dominion government. In 1942 there were 243 industrial establishments operating in the province. These employed 1,261 persons and turned out products valued at $6,855,344. There were 286 miles of railway on the island in 1943, which has daily steamship communication with the mainland. There were over 10,951 miles of telephone wires and 6,075 telephones on the island.

PRINCIPE. See PORTUGUESE COLONIAL EMPIRE.

PRISONS. See CRIME AND PRISONS.

PRIZES AND AWARDS. Among the principal awards and prizes made or announced in 1945 (some for achievements made previously) were the following:

Army and Navy Awards.—According to the *Biennial Report of the Chief of Staff of the United States Army to the Secretary of War,* submitted June 30, 1945: "Exclusive of the Purple Heart, which a man receives when he is wounded, the army awarded 1,400,409 decorations for gallantry and meritorious service since we entered the war. The nation's highest award, the Congressional Medal of Honor, was made to 239 men, more than 40 per cent of whom died in their heroic service; 3,178 Distinguished Service Crosses have been awarded; 630 Distinguished Service Medals; 7,192 awards of the Legion of Merit; 52,831 Silver Stars; 103,762 Distinguished Flying Crosses; 8,592 Soldiers Medals; 189,309 Bronze Stars; and 1,034,676 Air Medals."

According to the United States Navy Department, the total number of medals awarded during the Second World War, as of Oct. 24, 1945, were as follows: Medal of Honor, 91; Navy Cross, 2,823; Distinguished Service Medal, 208; Silver Star Medal, 6,455; Legion of Merit, 2,096; Distinguished Flying Cross, 4,842; Navy and Marine Corps Medal, 2,850; Bronze Star Medal, 11,711; Air Medal, 17,406; Letter of Commendation, 8,196; Letter of Commendation (Secretary of the Navy), 1,519.

Nobel Prize Awards.—The Nobel Peace Prize for 1944, awarded in 1945, was accepted by Dr.

Max Huber of Switzerland for the International Red Cross. The same award for 1945 went to Cordell Hull, former United States secretary of state. Professors Wolfgang Pauli of Zurich, Switzerland received the 1945 prize for physics and Otto Hahn of Berlin, Germany, received the 1944 award for chemistry. Both were cited for their work in atomic research. Sir Alexander Fleming, Sir Howard W. Florey, and Dr. Ernst B. Chain, all of England, received the 1945 award in medicine and physiology for their outstanding work in medicine, specifically in the development of penicillin. The 1945 chemistry prize went to Prof. A. I. Virtanen of Finland for his work in producing and conserving artificial fodder. The 1945 award in literature was bestowed on Gabriela Mistral (Lucila Godoy), Chilean poet. Each of the Nobel prize winners received a diploma and approximately $30,000.

Pulitzer Prizes.—On May 7, 1945, the board of trustees of Columbia University announced the Pulitzer Prize awards for 1944. A gold medal costing $500 was awarded to the Detroit *Free Press;* other awards in letters, journalism, and music were $500 each.

Letters: John R. Hersey, for the most distinguished American novel of 1944, *A Bell for Adano;* Mary Chase, for the play *Harvey;* Stephen Bonsal, for his history *Unfinished Business;* Russell Blaine Nye, for his biography *George Bancroft: Brahmin Rebel;* Karl Shapiro, for his book of verse *V-Letter and Other Poems.*

Journalism: For "the most disinterested and meritorious public service rendered by an American newspaper during the year," the Detroit *Free Press,* specifically for its investigation of legislative graft and corruption at Lansing, Mich. For "an outstanding example of news photography," Joe Rosenthal, photographer of the Associated Press, specifically for his photograph of marines raising the American flag on Mt. Suribachi on the island of Iwo. The photograph was actually taken in February 1945, but the board announced that it had "moved by resolution that the rule be suspended for this distinguished example." For his editorials, especially those on freedom of the press, George W. Potter, chief editorial writer of the Providence *Journal-Bulletin.* For "distinguished correspondence during the year," Harold V. (Hal) Boyle, war reporter and columnist of the Associated Press. For distinguished service as a cartoonist, Sgt. Bill Mauldin, cartoonist of the United Feature Syndicate, Inc. The cartoon chosen from his series "Up Front With Mauldin," as exemplifying his work, portrayed a single GI Joe slogging through mud and rain accompanying three German prisoners over the caption "'Fresh, spirited American troops, flushed with victory, are bringing in thousands of hungry, ragged, battle-weary prisoners' (News Item)." For a "distinguished example of telegraphic reporting on international affairs," Mark S. Watson, military correspondent of the Baltimore *Sun,* specifically "for his distinguished reporting during the year from Washington, London, and the fronts in Sicily, Italy, and France." For a distinguished example of a reporter's work in matters of special interest of a local or regional character, Jack S. McDowell of the San Francisco *Call Bulletin,* who gave a blood donation, flew to the front to see it used, and returned to write articles which stimulated the donation of blood in San Francisco and Los Angeles. Making a special journalism citation, the board commended the "cartographers of the American press, whose maps of the war fronts have helped notably to clarify and increase public information on the progress of the armies and navies engaged."

Music: For his *Appalachian Spring,* Aaron Copland. This ballet, written for and presented by Martha Graham and her company, was commissioned by Mrs. E. S. Coolidge.

Scholarship: The annual scholarship, having a value of $1,500, was awarded to Vincent de Gregorio, art student, of New York City. On May 18 it was announced that the Pulitzer Traveling Scholarships, which are awarded annually to members of the Graduate School of Journalism at Columbia University, had been awarded to Lois Felder, of Corpus Christi, Texas; Virginia Paty, of Denton, Texas; and Claire Neikind, of Mahopac, N. Y.

Motion Picture Awards.—The following awards were announced by the Academy of Motion Picture Arts and Sciences for the season of 1943–44:

Best production—*Going My Way* (Paramount).

Actress—Ingrid Bergman (*Gaslight*).

Actor—Bing Crosby (*Going My Way*).

Supporting actor—Barry Fitzgerald (*Going My Way*).

Direction—Leo McCarey (*Going My Way*).

Screenplay—Frank Butler, Frank Craven (*Going My Way*).

Original screenplay—Lamar Trotter (*Wilson*).

Original story—Leo McCarey (*Going My Way*).

Scoring, musical—Morris Stoloff, Carmen Dragon (*Cover Girl*).

Scoring, drama—Max Steiner (*Since You Went Away*).

Original song—*Swinging on a Star* (*Going My Way*); Music, James Van Heusen; lyrics, Johnny Burke.

Art direction, black and white—Edwin B. Willis, Paul Huldschinsky (*Gaslight*).

Art director, color—Thomas Little (*Wilson*).

Film editing—Barbara McLean (*Wilson*).

Sound recording—E. H. Hansen (*Wilson*).

Cinematography, black and white—Joseph LaShelle (*Laura*).

Cinematography, color—Leon Shamroy (*Wilson*).

Special effects, photographic—A. Arnold Gillespie, Donald Jahraus, Warren Newcombe (*Thirty Seconds Over Tokyo*).

Special effects, sound—Douglas Shearer (*Thirty Seconds Over Tokyo*).

Short subjects—Cartoon: *Mouse Trouble* (Metro-Goldwyn-Mayer); One-reel: *Who's Who in Animated Land* (Jerry Fairbanks-Paramount); Two-reel: *I Won't Play* (Gordon Hollingshead-Warner).

Thalberg Memorial Award—Darryl F. Zanuck.

Special award—Margaret O'Brien (as the outstanding child actress of the year).

Documentary production—Feature: *Fighting Lady* (20th Century-Fox-United States Navy); Short subject: *With the Marines at Tarawa* (United States Marine Corps).

Other motion picture awards were made by critics in khaki, on June 10, to Hollywood stars at Waltar Reed Army Hospital, Maj. Gen. Norman T. Kirk, the army's surgeon general, explaining that the selections were made through a poll of soldiers in all theaters of war, and that the assembly of wounded men before whom the awards were made represented all GI's. These

awards went to Bing Crosby because he had demonstrated "rare ability in creating and delivering weapons designed to eliminate the mental heaviness attendant upon GI's"; to Rita Hayworth because "her sheer loveliness and her willingness to share that loveliness through the medium of the screen with millions of war-sick and lonely GI's has contributed immeasurably to the morale of the fighting men"; to Jennifer Jones, who "by her outstanding performances, distinguished herself in the eyes of this nation and the men who are fighting for it"; to Leo McCarey for directing the film *Going My Way*, which "maintained in the minds of the American home front the principle for which American soldiers are fighting," and to Eddie Bracken for provoking "laughter from millions of GI's throughout the world when they were serving under conditions that rendered laughter almost impossible."

Science.—Dr. William Frederick Durand, chairman of the division of engineering and industry of the National Research Council, Washington, D.C., was awarded the American Society of Mechnical Engineer's Medal, the organization's highest honor, on July 29, particularly for his contributions to the design and application of the principles of jet propulsion. The society's Holley Medal went to Dr. Sanford Alexander Moss of West Lynn, Mass., for pioneer work in turbo-superchargers, which helped make possible the height, range, and speed of modern airplanes. The society's Worcester Reed Warner Medal was granted to Dr. Joseph M. Juran, assistant to the administrator of the Foreign Economics Administration, Washington, D.C., primarily for his work on the problem of quality control in mass production. The society awarded its Melville Prize Medal to William Julian King, research engineer of the fuels division of Battelle Memorial Institute, Columbus, Ohio, for his essay on *The Unwritten Laws of Engineering*. The Society's Junior Award was granted Bruce E. Del Mar, for his paper, *Presentation of Centrifugal Compressor Performance in Terms of Non-Dimensional Relationships*.

Kenneth Campbell, research engineer, received the Wright Brothers Medal at the aeronautical meeting of the metropolitan section of the Society of Automotive Engineers in New York City on April 5 for his article on cooling fans, adjudged the outstanding article of 1944 in the field of aeronautics.

The two principal annual awards made by the Institute of the Aeronautical Sciences on January 31, consisting of annual honorary fellowships, the one for the United States and the other abroad, were received by Dr. Edward P. Warner, vice chairman of the Civil Aeronautics Board, and Sir Frederick Handley Page. The Sylvanus Albert Reed Award for a contribution to aeronautics went to Fred E. Weick for his development of the two-control, non-spinnable Ercoups in the field of small planes. The John Jeffries Award for a contribution to aeronautical medicine was conferred on Air Marshal Sir Harold E. Whittingham, director general of the Royal Air Force medical services. The Octave Chanute Award was granted to Col. Benjamin S. Kelsey of the Army Air Forces for his achievements in testing high speed aircraft. The Robert M. Losey Award was received by John Cary Bellamy, special consultant to the air forces weather service, for contributions to meteorology; and the Lawrence Sperry Award, for the outstanding contribution of a young man to aeronautics, went to William H. Phillips, head of the stability and control flight section at Langley Field.

Dr. Harlow Shapley, director of the Harvard College Observatory, was awarded the Franklin Medal, highest honor of the Franklin Institute, on April 18 at Philadelphia, for his "many valuable contributions to the science of astronomy." Other individuals receiving medals from the Franklin Institute on this occasion included: Edwin A. Link, the Howard N. Potts Medal, for his "valuable contributions in the field of training devices for aviators"; Dr. Zay Jeffries, the Francis J. Clamer Medal for "meritorious contributions to the science of metals"; Gilmore David Clarke, for "technical ability, foresight and outstanding leadership in the field of town and city planning"; Sanford Lockwood Cluett, for "mechanical ingenuity in development of the process for the pre-shrinking of woven fabrics"; Rear Admiral Stanford C. Hooper, United States Navy, retired, for "pioneering leadership in the field of radio for the Navy"; Lewis Ferry Moody, the Elliott Cresson Medal for having played a "leading part in the development of the hydraulic turbine and pump"; Dr. Rupen Eksergian, the Louis E. Levy Medal for his paper "on the reaction of fluids and fluid jets."

Dr. Elmer K. Bolton was awarded the Perkin Medal, highest honor in applied chemistry, at a dinner of the American Section of the Society of Chemical Industry held in New York City on January 5, "for his leadership in the synthesis of neoprene, the first general-purpose synthetic rubber to be developed either in this country or abroad, and for his direction of nylon research."

Richard Erwin Dougherty, vice president of the New York Central Railroad System, received the 1945 Egleston Medal of the Columbia University Engineering Schools Alumni Association on April 15.

Dr. Edwin R. Gilliland, former assistant rubber director, professor of chemical engineering at Massachusetts Institute of Technology on duty with the Office of Scientific Research and Development in Washington, D.C., won the first Leo H. Baekeland Award of the North Jersey Section of the American Chemical Society, it was announced on February 7. The award, consisting of a gold medal and $1,000, is awarded biennially in recognition of achievements in pure or industrial chemistry.

John W. Thomas, who had supervised the designing and construction of a $2,000,000 rubber research laboratory at Akron, Ohio, was awarded the gold medal of the American Institute of Chemists on February 2.

Dr. E. F. W. Alexanderson, inventor of the alternator that made possible the first radio broadcast, was granted the Edison Medal, highest award in electrical engineering, at a joint session of the American Institute of Electrical Engineers and the Institute of Radio Engineers held on January 24.

Belated recognition came to Capt. Robert A. Bartlett and Commander Donald B. MacMillan, 36 years after they aided Admiral Robert E. Peary on his successful expedition to the North Pole, when they received the Peary Polar Expedition Medal on May 25 at the Boston Army Base. The citations stressed "outstanding service to the government of the United States in the field of science and for the cause of polar exploration" and "exceptional fortitude, superb seamanship, and fearless determination on the important and difficult mission."

Frank C. Whitmore, dean of Pennsylvania State College, was awarded the 1945 Willard Gibbs Medal of the Chicago Section of the American Chemical Society in Chicago, it was learned on May 18.

Edward C. Wells of Seattle on February 18 received the Fawcett Aviation Award for 1944 in Philadelphia for his contribution to the development of the Flying Fortress and the Superfortress.

Rear Admiral Edward R. Stitt, retired, was awarded the gold medal of the American Foundation for Tropical Medicine on February 5 in New York City.

To Dr. Leonard H. Cretcher, assistant director of Mellon Institute in Pittsburgh, was presented the Pittsburgh Award for outstanding service to chemistry, the award being made on February 15.

The American Design Award, consisting of a certificate and a check for $25,000, was presented to the National Academy of Sciences on April 19 in New York City, the award honoring a group of American scientists referred to as the "big six" in the country's scientific high command. These were Dr. Vannevar Bush, director, Office of Scientific Research and Development; Dr. James Bryant Conant, chairman, National Defense Research Committee (NDRC); Dr. Karl T. Compton, chief of the field service for the NDRC; Dr. A. Newton Richards, chairman, Committee for Medical Research; Dr. Jerome C. Hunsaker, chairman, National Advisory Committee for Aeronautics; and Dr. Ross G. Harrison, chairman, National Research Council.

Dr. Katharine B. Blodgett, it was announced in Washington on March 28, was awarded the $2,500 Achievement Award of the American Association of University Women, given annually to "an outstanding woman scholar in recognition of distinguished achievement." The citation mentioned her invention of "invisible glass" and also her important long-time research on methods of building films of almost "infinitesimal thickness."

The Grant Squires Prize awarded every five years to a graduate of Columbia University for original investigation of a sociological nature, was conferred, it was announced on May 20, on Dr. George Rosen, physician and sociologist serving at the time as a captain in the army's Division of Medical Intelligence.

Arts and Letters.—Tennessee Williams' drama, *The Glass Menagerie,* was named the best American play of the 1944–45 season by the Drama Critics Circle on April 10.

Booth Tarkington received the Howells Medal of the American Academy of Arts and Letters, for distinction in fiction, at the joint annual meeting of the academy and the National Institute of Arts and Letters held in New York on May 18. W. H. Auden received the academy's award of merit for poetry; Eva Le Gallienne, the medal for good diction on the stage; Paul Manship, the gold medal for sculpture; and Dr. Richard Beer-Hofmann, the award for distinguished achievement.

George Santayana, 82-year-old author and philosopher, received the 1945 Nicholas Murray Butler Gold Medal of Columbia University, given once every five years for the most distinguished contribution to philosophy or educational theory, practice, or administration. The Butler Silver Medal, awarded annually, went to Sidney Hook, professor of philosophy at New York University. Both awards were announced on April 6.

Elizabeth Metzger Howard of Winter Haven, Fla.; Charles Andrews Fenton, of New Haven, Conn.; and Fannie Cook of St. Louis, Mo., won three contests conducted by the editors of Doubleday, Doran, the publishing house. Mrs. Howard won the $20,000 prize with her novel, *Before the Sun Goes Down.* Mr. Fenton took the $4,000 prize in a New Writers' Contest with his novel *But We Had Fun.* Mrs. Cook, with a new novel on Negro life, won the George Washington Carver Memorial Award of $2,500.

The 1945 award of the Child Study Association of America went to Florence Crannell Means for her book, *The Moved Outers,* which dealt with a Japanese family removed during the war to a relocation center. Dorothy Canfield Fisher presented the award on November 12 at a "One Nation" luncheon held at the Astor Hotel, New York City.

Winners of the two $1,000 awards, silver plaques, and contracts granted by the Metropolitan Opera Association in New York on April 1 were Robert Merrill, baritone, of Brooklyn, and Thomas Tibbett Hayward, tenor, of Kansas City. Joseph Victor Laderoute, tenor, of Sault Ste. Marie, Ont., and Miss Pierette Alarie, colorature soprano, of Montreal, were awarded $500 scholarships, and first options on their services were taken by the Metropolitan.

Miscellaneous.—In behalf of the School of Journalism of the University of Missouri, medals for distinguished service in journalism were granted at Columbia, Mo., on May 10, to Foster S. Halley, editorial writer for the New York *Times;* Robert J. Casey, of the Chicago Daily *News;* and William E. Freeland, editor and publisher of the Taney County (Mo.) *Republican.* Newspapers and magazines honored in similar fashion were the Washington *Post,* the London *Daily Express,* and *Harper's Magazine.*

The Spingarn Medal, awarded annually by the National Association for the Advancement of Colored People "for the highest and noblest achievement by an American Negro during the preceding year" was granted to Paul Robeson, actor and singer, in New York City on October 18. The award was made specifically "for his distinguished achievements in the theater and on the concert stage, as well as his active concern for the rights of the common man of every race, color, religion and nationality."

Dr. Nicholas Murray Butler, president emeritus of Columbia University and president of the Carnegie Endowment for International Peace, received from the Americas Foundation, on October 12, in New York City, the Americas Award for "his lifetime contribution to friendship and understanding among the nations of the Western Hemisphere."

Gardiner Howland Shaw, of Boston, was named recipient of the 1945 Laetare Medal at Notre Dame, Ind., on March 11, an award made annually by Notre Dame University to an outstanding American Catholic. Mr. Shaw, who has enjoyed a distinguished diplomatic career, is also widely known for his work in social welfare.

Paul D. Williams, secretary of the Catholic Committee of the South and vice president of the National Council of Catholic Men, and Richmond Barthe, sculptor, received the 1945 James J. Hoey awards for interracial justice in New York City on October 29. These awards are conferred annually on a white and Negro layman who "have contributed prominently during the year to the cause of interracial justice."

Philip Murray, president of the Congress of

Industrial Organizations, and Auxiliary Bishop Bernard J. Sheil of Chicago were recipients of the first annual Msgr. John A. Ryan award of the Committee of Catholics for Human Rights at a dinner held in their honor at the Hotel Roosevelt in New York City on November 28. Solicitor General J. Howard McGrath awarded the bronze plaques, describing Bishop Sheil as "an eloquent and unfaltering voice for human brotherhood," and Murray as "a leader in the struggle for equal opportunity and human rights."

Ernie Pyle and Franklin D. Roosevelt were awarded the American Legion Distinguished Service Medals at the Legion's 27th annual national convention, which opened at Chicago on November 18. The noted writer and former president of the United States were both cited as having died in the distinguished service of their country.

It was announced in Washington, D.C., on December 13, that Gen. Carl A. Spaatz, commander of Strategic Air Forces in Europe and the Pacific, would receive the 1945 Robert J. Collier trophy awarded annually to the American making the outstanding contribution to aviation.

For Guggenheim Foundation awards, see GUGGENHEIM MEMORIAL FOUNDATION. See also MOTION PICTURES; PAINTING AND SCULPTURE.

PROTESTANT EPISCOPAL CHURCH. Months before V-E or V-J Day the church, through its National Council, laid plans for its postwar strategy and on May 1, 1945 launched its Reconstruction and Advance Fund. This effort has a twofold purpose: (1) the creation of a deep feeling of appreciation for the missionary work of the church throughout the world and the relationship between that work—the establishment of a worldwide Christian fellowship—and a lasting peace; (2) the raising of a minimum of $5,000,000 for reconstruction in areas overrun by the destruction of war—China, Japan, the Philippines; and advance in the war areas and other strategic centers—among Negroes in the United States, in Latin America and Liberia, and in the armed forces through the chaplains.

The Reconstruction and Advance Fund which is without precedent in the Episcopal Church will reach its climax on Feb. 3, 1946 when every parish in the United States will make an every-member canvass to secure the means required to carry out the program. By that time it is expected that church people will be better informed about the church's mission than ever before as a result of the intensive educational program that was inaugurated in May 1945 and which is a primary purpose of the campaign.

During the closing months of the war, chaplains of the church served with the armed forces, sharing with their men all the hardships and perils of modern war as is evidenced by these official statistics:

	Army	Navy
Killed in action	6	2
Died from other causes	3	..
Decorated for valor	56	9

Each year witnesses significant changes in the House of Bishops. During 1945, these changes were especially numerous. Twelve new bishops were consecrated including three missionary bishops: R. H. Gooden (Panama Canal Zone); Bravid W. Harris (Liberia); and Arthur B. Kinsolving, 2d (Arizona). The other new bishops, with the exception of Thomas H. Wright (East Carolina), William R. Moody (Lexington), Henry I. Louttit (suffragan, South Florida), and Alfred L. Banyard (suffragan, New Jersey) were all coadjutor bishops: Donald B. Aldrich (Michigan); Conrad H. Gesner (South Dakota); Frederick L. Barry (Albany, N.Y.); C. Avery Mason (Dallas, Texas); and John E. Hines (Texas).

Three bishops died during the year: the Rt. Rev. H. P. Almon Abbott (Lexington), the Rt. Rev. Julius W. Atwood (retired, Arizona), and the Rt. Rev. Frank T. Touret (retired, Idaho).

The National Council's department of promotion continued to utilize radio and motion pictures as media for proclaiming the church's message. Its second professional sound motion picture, *Thy Will Be Done*, was released in the autumn of 1945 and met with instant success. The Religious Film Association accorded it its highest rating. The department was also taking a leading part in the organization of a Protestant film association for the production of more and better motion pictures. In radio, the church continued its participation in Columbia's *Church of the Air* and Mutual's *Radio Chapel;* stimulated use of local stations; and produced a second series of transcriptions for radio broadcast under the general title *The Living People.* This series of nine transcriptions was directly related to the church's annual every-member canvass and demonstrated the National Council's use of modern media.

The church took a leading part in the national clothing drives and the church Christmas packages for distressed peoples in Europe and Asia. Through the Presiding Bishop's Fund for World Relief, Episcopalians, in 1945, gave in excess of $50,000 for the succor of afflicted peoples and late in the year was organizing to participate actively in the material aid programs under the World Council of Churches and the Church Committee for Relief in Asia.

A number of distinguished churchmen from overseas visited the United States in 1945. Chief among these were the bishop of Melanesia, the Rt. Rev. Walter H. Baddeley; the bishop of Tanganyika, the Rt. Rev. George A. Chambers; the bishop of Chichester, the Rt. Rev. G. K. A. Bell, who came to America for meetings of the Executive Committee of the World Council of Churches; and Dr. Francis C. M. Wei, president of Central China College, who came as the first visiting Henry R. Luce professor of World Christianity of Union Theological Seminary of New York.

The General Convention, the central legislative body of the church, which meets triennially, will convene for its 55th session on Sept. 10, 1946 in Philadelphia, Pa., instead of San Francisco, Calif., as previously announced. Between sessions of the General Convention, the affairs of the church are conducted by the National Council.

The headquarters of the National Council, which is also the board of directors of the Domestic and Foreign Missionary Society, are in the Church Missions House, 281 Fourth Avenue, New York 10, N.Y. The official magazine is *Forth*, William E. Leidt, editor. The president of the National Council is the Rt. Rev. Henry St. George Tucker, formerly bishop of Virginia.

WILLIAM E. LEIDT,
Editor of Forth; Director of Publications, National Council, Protestant Episcopal Church.

PRUNES. Only four states are listed by the United States Department of Agriculture as producers of prunes. California leads, with an esti-

mated crop in 1945 of 212,000 tons, followed by Oregon with 93,500 tons. Idaho was third with 28,000 tons and Washington fourth with 24,900 tons. Figures in tons for the four states in 1944 were as follows: California, 159,000; Oregon, 60,400; Washington, 27,000; and Idaho, 22,900. California's crop is estimated on a dried prune basis of 2½ pounds of fresh fruit to 1 pound dried. The figures for the other states are given on a fresh fruit basis.

PRUSSIA, East. A northern province of Prussia and of the German Reich, bounded (according to the Versailles Treaty, 1919) on the south and west by Poland, on the northwest by the Baltic Sea, on the north by the territory of Memel, and on the east by Lithuania. Parts of East and West Prussia were awarded to Poland (under the Versailles Treaty) thereby separating the province of East Prussia from Germany proper by the strip of territory known as the Polish Corridor. The total area of the province under the treaty was 14,286 square miles, and its population in 1933 was 2,333,301. A long period of unrest and friction with the Poles over communication facilities between East Prussia and Germany ended in September 1939 with the Nazi invasion of Poland, when the Corridor, along with the Free City of Danzig, was incorporated into the German Reich. Königsberg (pop. in 1939, 368,-433) the capital of East Prussia, is an important port on the Baltic Sea.

Soviet military forces, it was reported on Jan. 15, 1945, reopened a determined offensive in East Prussia, and within two days had taken Schlossberg. The capture of Tannenberg was reported on January 22, and on January 26, the Red Army reached Tolkemit on the Baltic, cutting off East Prussia from the rest of Germany. On April 9, it was announced that Soviet troops had taken Königsberg, capturing over 42,000 Germans in a 2-day battle. On April 19, Soviet forces captured Pillau, clearing the mainland of the last remaining Nazi troops.

On August 12, a communiqué issued by the Berlin Conference held by President Harry Truman of the United States, Prime Minister Clement R. Attlee of Great Britain, and Premier Joseph Stalin of the Soviet Union, outlined the future of East Prussia as follows: "The East Prussia city of Königsberg and adjacent area are transferred to Russia pending ultimate determination of boundaries, with Poland's western frontier running from west of Swinemünde on the Baltic south along the Oder and Neisse rivers to the Czech frontier. Poland would get that part of East Prussia not given to Russia."

PSYCHOLOGY. From Oct. 1, 1944, to Oct. 1, 1945, psychologists were still for the most part engaged in one variety or another of war work. Since the combat phase of the war is now over, it can be anticipated that interests and motivations acquired in the war effort will result in many years of continued research in concrete, applied problems on the one hand, and on the other in problems of personality and adjustment.

Only a few general texts have appeared. There are two written for high schools—A. Crow and L. D. Crow, *Learning to Live with Others* (Boston, Heath, 1944, 284 pp.); and T. L. Engle, *Psychology—Principles and Applications* (Yonkers, N.Y., World Book Company, 1945, 549 pp.). C. N. Bittle has written a philosophical psychology entitled, *The Whole Man* (Milwaukee, Bruce, 1945, 687 pp.), and W. White has stressed social relations, personal worth and how to get along with people in *Psychology in Living* (N.Y., Macmillan, 1944, 333 pp.).

In the historical field R. E. Brennan published *History of Psychology from the Standpoint of a Thomist* (N.Y., MacMillan, 1945, 277 pp.). E. Cassirer, eminent in philosophy and scientific method, wrote *An Essay on Man: an Introduction to a Philosophy of Human Culture* (New Haven, Yale University Press, 1944, 237 pp.), in which symbolic thought, speech and language are emphasized as factors in the evolution of culture. From a socio-psychological point of view, R. Linton edited *The Science of Man in the World Crisis* (N.Y., Columbia University Press, 1945, 532 pp.), a collection of papers by 22 different social scientists.

So many books have appeared this year worthy of the attention of AMERICANA readers that in most instances the titles, only, will have to suggest the content. There are one interesting book and two papers in general theory written from the background of biological science. The book is by G. W. Corner, *Ourselves Unborn: an Embryologist's Essay on Man* (New Haven, Yale University Press, 1944, 188 pp.), stressing the comparatively generalized nature of patterns in the human as compared with other embryos, a condition that permits maturation of free activities in spite of the "foreordination" resulting from genetic factors. The first paper is by C. J. Herrick, "The Incentives of Science", in the *Scientific Monthly* (1944, Vol. 58, 462–466), in which the author makes the unusual but timely assertion that science is a growing thing because human beings are still growing (evolving). Science is not in the strictest sense of the term a body of objective facts and impersonal abstractions. Of necessity science must be interested in human values and in the end the goals of humanism and science are the same. The other paper is by R. S. Lillie, in *Philosophy of Science* (1944, Vol. 11, 161–179) which stresses a directive factor in animal life, psychological in character, which acts and influences behavior only in the present.

Experimental studies show the trend toward physiological psychology and the simpler processes, as anticipated in the AMERICANA ANNUAL review of 1942; cortical extirpations; electroencephalography; physiological and emotional reactions under stress, as at high altitude conditions; psychosomatic (biodynamic) medicine, theories of vision, cutaneous sensitivity, "facial vision," figural after-effects in visual processes, ecology and the like.

The trend is toward detailed mapping of the cortex (localization of function) although W. S. McCulloch (*Physiological Review*, 1944, Vol. 24, 390–407) points out that the primary sensory areas do not give rise to interregional association fibers, hence increasing the presumed importance of the "association areas". The *Journal of General Psychology, Physiological Review; Diseases of the Nervous System; Journal of Nervous and Mental Diseases; Journal of Neurophysiology;* and *Psychosomatic Medicine,* all carry articles on the alpha waves of the cortex, extending our knowledge in this specialized but important field in several different directions. C. E. Henry, in Mon. Soc. Res. Child Dev., No. 3, 1944, summarizes results from 1,473 children ranging from 3 to 19 years of age. P. C. Buey is the editor of a handbook on *The Pre-central Motor Cortex,* (Illinois Mon. Med. Sci., Vol. 4, 1944, Nos. 1–4, 605 pp.), an important source of information. A. S. Householder and H. D. Landahl have a theoreti-

cal treatise on *Mathematical Biophysics of the Central Nervous System,* (Bloomington, Ind., Principia Press, 1945, 124 pp).

The trend toward mechanistic interpretations of behavior as opposed to organistic, predicted in 1942, shows signs of increase both in the field of neurology and animal behavior. Windle, long an opponent of Coghill's principle of individuation presents evidence which he believes refutes that principle as Coghill applied it to stages in the maturation of motor co-ordination in the embryo. Windle insists that the first responses in most complex animal embryos are of the reflex rather than the mass action type. Harlow and others (*Journal General Psychology*) working on monkeys seem to lean toward the absolute rather than the relative response as the simpler and more basic in monkeys. That is, transposition, held in the organistic view as the basic process, is relegated to a secondary position.

In the field of heredity, R. Cook (*Journal of Heredity,* 1944, Vol. 35, 133–4) discusses the "Rh" gene, gene of human blood, as a cause of mental deficiency and suggests that incompatibility may account for twenty-five to thirty per cent of the hitherto undifferentiated types of deficiency. Scheinfeld (*Journal of Heredity,* 1944, Vol. 35), from follow up data, questions certain of the interpretations in Goddard's famous 1912 study of the Kallikak family, another timely contribution.

There are many important books in the field of social psychology, and related areas:

Criminology: G. Creel, *War Criminals and Punishment* (N. Y. McBride, 1944, 303 pp.), a description of atrocities perpetrated in Europe, and what should be done about it; Abrahamsen, *Crime and the Human Mind* (N.Y., Columbia University Press, 1944, 244 pp.); Karpman, *Case Studies in the Psychology of Crime,* Vol. 2, cases 6–9, (Washington Medical Science Press, 1944, 738 pp.).

Religion and Attitude: J. Wach, *Sociology of Religion* (Chicago, Chicago University Press, 1944, 412 pp.); Powdermaker and Storen, *Probing Our Prejudices,* a unit for high schools, sponsored by the Bureau of Intercultural Education (N.Y., Harper, 1944, 73 pp.); Bruner, *Mandate from the People,* (N.Y., Duell, Sloan and Pearce, 1944, 278 pp.) a study of American public opinion on a dozen postwar problems.

Family Relations: R. G. Foster, *Marriage and Family Relations,* (N.Y., Macmillan, 1944, 314 pp.); E. R. Groves, *Conserving Marriage and the Family,* (N.Y., Macmillan, 1944, 138 pp.), gives addresses of marriage clinics and counsellors.

Public Relations: Writer's Congress, *Proceedings,* (Berkeley, Calif., University of California Press, 1944, 663 pp.), deals with social and psychological problems of mass media—radio, motion pictures, the press—and sponsored by Hollywood Writers Mobilization and the University of California.

Books for Veterans: W. Waller, *The Veteran Comes Back,* (N.Y., Dryden, 1944, 316 pp.), by a sociologist and veteran of the First World War; Yost and Gilbreth, *Normal Lives for the Disabled,* (N.Y., Macmillan, 1944, 298 pp.); Child and Van de Water (eds.), *Psychology of the Returning Service Man,* (Washington, D.C., Infantry Journal and Penguin Books, N.Y., 1945), the sequel to *The Psychology of the Fighting Man,* and a practical pocket edition, available in many bookstores and newsstands. There are chapters on (1) out of uniform, (2) meeting problems and looking ahead, (3) choosing a job, (4) learning new skills, (5) getting married, (6) returning to your wife, (7) being a father, (8) the veteran as a citizen, (9) social conflict, (10) POW, (11) getting well, (12) building up, (13) NP's, (14) combat nerves, (15) injuries to the nervous system, (16) injury to sight or hearing, (17) loss of limb, (18) years of your life. G. K. Pratt, *Soldier to Civilian—Problems of Readjustment,* (N.Y., Whittlesey House, 1944, 233 pp.).

Interpretative General Accounts: Malinowski, *Freedom and Civilization,* (N.Y., Roy, 1944, 338 pp.), a famous anthropologist argues for a World State; C. L. Stevenson, *Ethics and Language* (New Haven, Yale University Press, 1944, 338 pp.); R. West, *Conscience and Society—a Study of the Psychological Prerequisites of Law and Order,* (N.Y., Emerson, 1945, 261 pp.).

Adjustment Problems: Bossard and Boll (eds.), *Adolescence in War Time,* (Annals of the American Academy of Political and Social Science, 1944, Vol. 236, pp. 1–168), a successor to the earlier work on children in a depression decade; H. B. Richardson, *Patients Have Families,* (N.Y. Commonwealth Fund, 1945, 408 pp.); R. Linton, *The Cultural Background of Personality,* (N.Y., Appleton-Century, 1945, 157 pp.).

In the field of vision there are Dvorine, *Dvorine Color Perception Testing and Training Charts,* Vol. 1, Testing Charts; Vol. 2, Training Charts; and a manual, (Baltimore, Author, 2328 Eutaw Place, 1944, 130 plates); and Luckiesh, *Light, Vision and Seeing,* (N.Y., Van Nostrand, 1944, 325 pp.).

In the industrial field and guidance there are M. Smith, *Handbook of Industrial Psychology,* (N.Y., Philosophical Library, 1944, 304 pp.); Amiss and Sutton, *The Industrial Supervisor: a Training Guide for Improvement of Skill and Leadership,* (N.Y., Ronald, 1944, 243 pp.); Reed, *Guidance and Personnel Services in Education,* (Ithaca, N.Y., Cornell University Press, 1944, 496 pp.); Bradley, *Your Problem—Can It Be Solved?,* (N.Y., Macmillan, 1945, 213 pp.); J. E. Walters, *Personnel Relations—Their Application in a Democracy,* (N.Y., Ronald, 1945, 547 pp.); N. Cantor, *Employee Counselling—A New Viewpoint in Industrial Psychology,* (N.Y., McGraw-Hill, 1945, 167 pp.).

In the field of child and educational psychology there are new contributions: Chittenden, *Living with Children,* (N.Y., Macmillan, 1944, 164 pp.); A. S. Neill, *The Problem Teacher,* (N.Y., International University Press, 1944, 160 pp.); H. Lewis, *How to Read Better and Faster,* (N.Y., Crowell, 1944, 319 pp.), covers methods of thinking as well as reading; E. Gann, *Reading Difficulties and Personality Organization,* (N.Y., King's Crown Press, 1945, 149 pp.); Betts and Betts, *An Index to Professional Literature on Reading and Related Subjects,* (N.Y., American Book Co., 1945, 135 pp.), a bibliography of 8,278 titles.

The new and coming field of human ecology is represented by several papers covering the relationship of mental disorders to population density (Hyde and Kingsley); motivation in rats living under different artificial climates (rats from a cool "climate" show on the whole considerable more motivation than those from a hot "climate" (K. Moore); rates of rejection from the armed services in relation to population density (Hadley et al.); social behavior, range and territoriality in domestic mice (Scott); and the psychology of frogs and toads (Bragg).

Ellsworth Huntington, in his usual erudite and encyclopedic manner, has published a very

important book: *Mainsprings of Civilization*, (N.Y., Wiley, 1945, 660 pp.). This book attempts to analyze the role of biological inheritance and physical environment (location, geography, climate) in influencing the course of history. It is a book that must be taken seriously by students in many different fields.

RAYMOND H. WHEELER,
Professor of Psychology, University of Kansas.

PUBLIC BUILDINGS ADMINISTRATION. See FEDERAL WORKS AGENCY.

PUBLIC HEALTH SERVICE, United States. First established as the Marine Hospital Service in 1798 by an act of Congress "for relief of sick and disabled seamen," the United States Public Health Service is today the principal federal agency concerned with the health protection of the American people. It was transferred from the Treasury Department to the Federal Security Agency (q.v.) when the latter was established in 1939. The specific duties imposed by Congress bring the service into an increasingly closer relation with the state and territorial health authorities and provide for active co-operation with other federal agencies, professional bodies, and scientific institutions in the interest of public health.

Administrative Units.—The Public Health Service carries on its functions under four administrative units: Office of the Surgeon General, National Institute of Health, Bureau of Medical Services, and Bureau of State Services. The surgeon general maintains general supervision over the administration and operations of the service. In addition, he is responsible for professional supervision over Public Health Service officers detailed for duty with other governmental agencies and for maintaining relations of the Public Health Service with international organizations having public health functions.

Advisory Groups.—The Public Health Service Act of 1944 (Public Law 410) codified 150 years of legislation pertaining to the Public Health Service and broadened the role of the National Advisory Health Council in consulting with, and making recommendations to, the surgeon general on matters relating to health activities and functions of the service. The council was required to recommend grants for research and the first grant approved was that of $92,000 to the University of Utah for a study of the heredity of muscular distrophy. The Cancer Act of 1937 provided authority for grants for cancer research, but grants for general research were not authorized until 1944.

The National Advisory Cancer Council, established in 1937 by earlier legislation, was continued under Public Law 410. Grants-in-aid totaling $140,043.44 for 19 research projects were approved in 1945. This amount reflects the growing interest in the disease by medical groups throughout the country that are joining in cancer research and education. At the present time, cancer is the second cause of death in the nation.

Other groups which serve as advisory boards to the Public Health Service are the Sanitation Advisory Board, Advisory Committee to the Division of Nurse Education, Board for the Control of Biological Products, Advisory Council on Nervous and Mental Diseases, Mental Hospital Survey Committee, Surgeon General's Advisory Committee on Education for the Prevention of Venereal Disease, Committee of Consultants in Dermatology, Committee on Postwar Training of Public Health Personnel.

Demonstrations.—Section 314 of Public Law 410 authorized demonstrations in the field of public health. Two types of demonstrations were initiated in 1945: one in nutrition, a demonstration of the detection of malnutrition through mass surveys; and the other a 10-year study of the control of dental caries by the addition of fluorides to public water supplies.

Cadet Nurse Corps.—During 1945, the United States Cadet Nurse Corps fulfilled the purpose for which it was established under the Division of Nurse Education to assure "a supply of nurses for the armed forces, governmental and civilian hospitals, health agencies and war industries." This was accomplished through an intensive recruitment campaign for new student nurses—completed Oct. 15, 1945—more rapid preparation under an accelerated program, and provision of means for distributing nursing services. Nurses who enrolled up to Oct. 15, 1945 continue to receive scholarship benefits for their full course of undergraduate study. Grants were authorized by the Nurse Training Act of June 15, 1943 (57 Stat. 153). Allotments were administered to schools of nursing for fees, maintenance, tuition, and fees for postgraduate courses. The recruitment quota set for the 1945 fiscal year was 60,000 new student nurses. New admissions totaled 61,471. From the inception of the corps to June 1945, 16,000 corps members were graduated.

The added strength of nursing personnel is revealed by a comparison of the 1942 enrollment in schools of nursing, which was 91,457, with the 126,576 enrollment in 1945.

Aid to States.—A major responsibility of the Public Health Service is to administer grants-in-aid to states to assist development of their public health organizations and through field work to apply measures for controlling many diseases. Grants to states for general public health work have been of great importance in developing health services throughout the country. Used to augment state and local appropriations for better and more extensive health protection, these grants have served as a means of establishing public health work in new areas and in initiating new services in established health departments.

Allotments and payments to states as grants-in-aid have increased from $8,000,000 first authorized in 1936 to $21,765,800.52 in 1945. This sum comprised $10,913,490.26 for general health, $9,482,196.26 for venereal disease control, and $1,370,114.00 for tuberculosis control.

Appropriations for Emergency Health and Sanitation and related activities totaled $50,703,154 for services in military and war industrial areas from July 1, 1940 through June 30, 1946. The major share of industrial health services, and a large part of the environmental sanitation work have been made possible by such appropriations. Many commmunities owe their local health departments to the war program. This program has included the assignment each year of between 300 and 400 professional personnel to state health departments by the Public Health Service.

Tuberculosis Control.—The tuberculosis control program is directed toward (1) determination of the extent of this problem by age, race, and sex of the population in each community; (2) mass case finding by all available technics; (3) hospitalization of infectious and remediable cases; (4) provision of clinic facilities for the care and supervision of ambulatory patients; (5) vocational and social rehabilitation of re-

covered patients; (6) research in newer and better methods of control, including search for new drugs to cure the disease; (7) professional education of medical and allied groups in the diagnosis, treatment, rehabilitation and after care of tuberculosis patients; and (8) health education for the general public.

In addition to providing chest X-ray examination service to 1,375,497 persons, including industrial workers, farm laborers, federal employees, and members of the United States Coast Guard, division personnel also toured the 13 Coast Guard separation centers to supervise the installation and operation of X-ray units. The division co-operated with allied agencies in promoting mass radiography surveys as a case-finding measure. Twenty field demonstration X-ray units, equipped and staffed by the division, have been instrumental in conducting case-finding programs and in stimulating local purchase and operation of units in many states and communities.

Venereal Disease Control.—Four important developments in venereal disease control during the past year were (1) the recognition that rapid treatment centers should be made an integral part of the long range venereal disease control program; (2) the development of methods whereby treatment of gonorrhea with penicillin can be completed in relatively few hours; (3) intensive community-wide programs of public education, mass diagnosis, and treatment conducted in two large cities; and (4) the consideration of principles of local, national, and international control by the National Conference on Postwar Venereal Disease Control.

Admissions to 2,500 clinics treating venereal disease totaled 278,369 cases of syphilis in fiscal year 1945, a decrease of 22 per cent over 1944, and 200,176 cases of gonorrhea, a 36 per cent increase. Rapid treatment centers admitted 61,898 cases of syphilis and 67,326 cases of gonorrhea. Fifty-four of these centers were operated by the Public Health Service and state health departments for the intensive treatment of syphilis. The centers have reduced the average stay of patients from 24 days to about 11 days for syphillis and from 16 days to 3 days for gonorrhea. They are now treating approximately 180,000 patients a year.

The two cities participating in intensive programs of mass diagnosis and treatment were New Orleans, La., and Birmingham, Ala. During a 45-day drive in New Orleans, 4,000 cases of gonorrhea were discovered and treated with penicillin provided to private physicians and clinics by the Public Health Service. In Birmingham, 300,000 persons, or 92 per cent of the population of Jefferson County were blood tested for syphilis. Of these 50,000 showed doubtful or positive reactions. Also in Birmingham, voluntary examinations resulted in the detection of 3,000 cases of gonorrhea.

Industrial Health.—The many changes which have taken place in the labor force, in materials and methods of production, and in working, home and community conditions, have greatly increased industrial health problems. The Public Health Service has provided consultant services to the states on general programs and has provided specialists for the staffs of state and local industrial hygiene organizations. Control of occupational diseases and accidents, provision of medical services, and proper placement of workers in jobs suited to their physical abilities, continued to be the basic elements of the industrial hygiene program promoted by the service in cooperation with other governmental agencies, management and labor.

Malaria Control.—The work of the Office of Malaria Control in War Areas has been influenced by changing conditions. Until Jan. 1, 1945, work had been limited to war areas. At this time, Public Health Service authority was extended to include malaria foci which would affect the civilian population. This involved the strengthening of existing controls in the South and the establishment of mobile units to safeguard areas where malaria carriers from overseas have been introduced. As a part of this program, the Office of Malaria Control in War Areas conducted the spraying with DDT of 300,000 private dwellings in malarious areas of 13 Southern states. The success of the war areas program was shown in the uninterrupted downward trend of malaria cases.

Typhus Control.—The Typhus Control Unit assisted in the organization or operation of numerous programs to combat the spread of typhus in 10 Southern states and Puerto Rico. In July, all operations and facilities of this unit were transferred to the Office of Malaria Control in War Areas.

Medical Care.—As war operations attained a peak during the past year, the Hospital Division furnished the largest volume of medical relief in its history. All hospital and out-patient facilities were utilized beyond range of normal capacity in order to meet the great demand for medical care of Public Health Service beneficiaries. The total number of patients admitted to the 27 Marine hospitals for in-patient care was 98,300 which is 85 per cent more than in the prewar year 1939. Applying for treatment in the out-patient department were 329,000 persons or 70 per cent more than in 1939.

The number of merchant seamen given medical relief by the service increased substantially during the past year and the seamen continued to form the largest portion of the in-patient load of the service. They have increased from less than 32 per cent of the daily average in-patient census last year to almost 38 per cent. The daily average census of Coast Guard patients declined because of the increasing number of coast guardsmen on overseas assignments, where medical care was provided by naval and other facilities. This group comprised only 23 per cent of the total as compared with 29 per cent in 1944. Veterans accounted for almost 8 per cent of all in-patients. Of the out-patient treatments furnished, approximately two fifths were for Coast Guard personnel, one fourth for American merchant seamen, and one tenth for U. S. Employees' Compensation cases.

An annex opened at Neponsit Beach, Long Island, N.Y., for the treatment of tuberculosis supplemented the overcrowded Stapleton Marine Hospital. The treatment of patients suffering with leprosy continued at the Marine Hospital in Carville, La. In 1945, there were 64 admissions to this institution.

Mental Hygiene.—During the year the work of surveying public mental hospitals was continued. Seventy-one institutions in 20 states were surveyed or visited. A study of addiction to marijuana smoking was carried out on six subjects at the Public Health Service Hospital in Lexington, Ky. Various other studies were continued on the nature and treatment of drug addiction. The hospital in Fort Worth, Texas, established a notable record in the treatment of psychotic pa-

tients of the United States Navy. Admissions for the year totaled 2,748 male patients. Approximately 80 per cent of the patients have been released as cured within three months' time, although many of these were sent back to their home communities with the recommendation that psychiatric supervision and counsel be continued.

Quarantine Services.—The Public Health Service has legal responsibility for preventing the introduction of communicable diseases into this country. An inter-state quarantine responsibility of the service is control of communicable diseases. Quarantine activities in the past year show the following percentage increases over the previous year: inspection of planes arriving, 77 per cent; vessels inspected, 39; vessels fumigated, 25; examination of passengers from vessels, 77; and examination of passengers from planes, 83. Quarantine regulations were changed to abolish the procedure requiring the double boarding of vessels destined for continental United States by way of Hawaiian or Puerto Rican ports.

National Institute of Health.—Throughout the war, the National Institute of Health concentrated its efforts upon research in subjects directly related to the needs of the military and of war industries. Among the outstanding contributions made by the institute were: (1) the development and production of a safe and effective typhus vaccine which has protected the armed forces of the United States in epidemic areas abroad; (2) the synthesis and clinical evaluation of new antimalarial drugs; the development of rapid diagnostic tests for many exotic diseases affecting the armed forces abroad; (3) the discovery of the causative agent for jaundice following yellow fever immunization, as a result of which it was possible to produce an improved, safe, yellow fever vaccine for the armed forces; (4) epidemiologic studies to investigate potential domestic hosts of schistosomiasis, filariasis, leishmaniasis, and trypanosomiasis; (5) testing the effectiveness of army and navy equipment, such as water purifiers, insecticides, protective clothing, etc.; (6) determination of toxicity and establishment of control methods for handling many new substances including new explosives, high octane gas, solvents and rare metals, used in war plants and military operations as well as in the manufacture of munitions; (7) extensive research in aviation medicine, including development of protective clothing equipment; (8) the development of blood plasma substitutes; (9) and the determination of the role of folic acid deficiency in blood dyscrasias. For security reasons, much of the work of the National Institute of Health remained confidential until the termination of the war.

Caudal Analgesia.—For the past two years, the Public Health Service has co-operated with the Philadelphia Lying-In Hospital, the Pennsylvania Hospital, and the Jefferson Medical School in maintaining a graduate medical course in the study and control of pain in childbirth. Because of the increasing demand for this instruction, the program was transferred to the University of Tennessee College of Medicine in Memphis to provide more clinical material. The major accomplishments of this project include the training of 600 physicians in the methods of continuous caudal analgesia; the training of 25 nurses in the management of cases under this form of analgesia; the management of pain relief for 3,000 normal obstetrical cases during labor and delivery, of 456 obstetrical patients undergoing cesarean section, and of 1,100 patients undergoing other surgical procedures.

Inter-Agency Co-operation.—Co-operative activities with other interested federal agencies, with official and voluntary health groups, and with social welfare agencies and educational organizations have continued at an accelerated rate. In line with the Public Health Service policy of assisting other agencies by assignment of trained personnel to help carry out their health activities and thereby promote the co-ordination of the health activities of the federal government, the Public Health Service worked with: War Shipping Administration; Office of Indian Affairs; Bureau of Prisons; U. S. Employees Compensation Commission; Coast Guard; Farm Security Administration; Office of Vocational Rehabilitation; Detention Centers; and Public Roads Administration.

Approximately 324,000 medical examinations were given to seamen in the 20 Port Medical Representatives' Offices. To achieve maximum possible attention to the serious problem of dental care, major training stations, ships, and crew examination offices established dental clinics. Eight new dental clinics were opened during the year, bringing the total to 27.

In addition, the Public Health Service detailed more than 200 officers to serve with the United Nations Relief and Rehabilitation Administration and has assigned a liaison officer with the State Department. The surgeon general of the United States Public Health Service, Dr. Thomas Parran, is an advisor to the United States delegates to the United Nations Conference on Food and Agriculture.

Surplus Property.—At the request of the Surplus Property Administration, the Public Health Service assists in the administration of the Public Benefits program. Opportunity to buy surplus property has been granted to nonprofit educational and public health institutions in a regulation issued by the Surplus Property Administration. This regulation (SPA Reg. 14) is designed to put into operation the Public Benefits program (Sect. 13) of the Surplus Property Act of October 1944. A medical officer and sanitary engineer in each continental Public Health Service district office will assist institutions in determining their needs and eligibility.

Vital Statistics.—Three important communicable diseases—poliomyelitis, meningococcus meningitis and scarlet fever—reached epidemic proportions in the United States during 1944. A total of 19,053 cases of poliomyelitis were reported, the largest annual total since 1916. Incidence of meningococcus meningitis in 1944 totaled 16,094 cases, slightly lower than 1943, the year of highest incidence. Scarlet fever was unusually prevalent during 1944 with 191,200 cases reported. The influenza epidemic which broke out in the middle of November 1943, carried over into the early months of the following year.

A slight decline in the general death rate was noted in 1944. The final general mortality rate for 1944 of 10.6 per 1,000 estimated population compares with 10.8 for 1943. The birth rate for 1944, 20.3 per 1,000 population, was slightly lower than that for the preceding year. Infant mortality continued to drop with a provisional rate for 1944 of 39.4 deaths per 100,000 live births as compared with 40.3 in 1943. For the first half of 1945 it was 39.0: the rate appears to be dropping further.

Personnel of Commissioned Corps.—On June 30, 1945, the Commissioned Corps of the service

numbered 3,139 officers on active duty. The number of officers on active duty increased by 797, the largest increase in any one year. This was due in large part to the extension of policy authorized by Congress which permitted commissioning of nurses, dietitians, and physiotherapists.

Appropriations.—The total appropriation of the Public Health Service for the year was $127,792,457. Grants-in-aid to states totaled $21,765,800 of this amount.

PUBLIC LANDS. Operating through 4 branches with 12 divisions in Washington, 5 agencies in the field with 25 offices scattered throughout the West and in Alaska, and 25 district land offices also strategically located for service in the West and in the territory, the General Land Office of the federal government closed its books for the period with a net profit both in conservation advancement and in financial gains in the administration of 778,000,000 acres of public domain.

During the war years, more than 16 million acres of the public domain were made available as sites for camps, gunnery ranges, aviation bombing fields, tank training areas, and other combat training zones. In addition, many secret withdrawals of land were made to assist the army and navy in carrying on the war, and several millions of acres were placed in a state of reserve to permit the untrammelled development for war purposes of the petroleum and other mineral resources in the areas. At the same time, the activities of trained investigators and cadastral engineers and other experts in land identification, classification and management were centered almost entirely upon war-connected tasks, ranging from the examination of thousands of mining claims to the segregation of areas in Arizona, New Mexico and other states for use in experimentation and in the development of the atomic bomb. Never before in history had the public lands under the jurisdiction of the General Land Office been called upon to provide such an abundant supply of natural resources for military purposes as in the period of the Second World War which drew near to a close with the end of the 1945 fiscal year.

In the aggregate, the activities of the General Land Office produce cash returns several times greater than the expenditures incident to its operations. In 1945, these cash receipts totaled $13,381,654 and represented a ratio of $5.66 for every $1 of the expenditures which aggregated $2,365,005. This was the second consecutive year in which the receipts exceeded $13,000,000 and the fourth time they have exceeded $10,000,000 since 1880.

Mineral rentals, royalties and bonuses accounted for 82 per cent of the total receipts, and sales of timber from revested Oregon and California railroad grant lands and reconveyed Coos Bay Wagon Road grant lands for an additional 13 per cent. The remaining 5 per cent were realized from sales of public and ceded Indian lands, rentals, fines and penalties, copying fees, and from miscellaneous sources.

World demands for lumber and other forest products in the postwar period were reflected in operations and plans of the Oregon and California Revested Lands Administration during the 1945 fiscal year. Established in 1938 to carry out a broad program of sustained yield forestry management on 2½ million acres of land in western Oregon which once was encompassed in a federal railroad grant but later revested in government ownership, this branch of the General Land Office maintains its headquarters at Portland, Oregon.

Rated as the world's largest experimental laboratory in practical co-operative sustained yield forest management, the "O and C" lands provide the testing ground for a world pattern of forestry economy. In 1945, sales of timber from these lands exceeded 426,000,000 board feet valued at approximately $1,518,000.

In the 1945 fiscal year, a total of 12,479,270 acres in the United States and Alaska was made subject to use for grazing under 10,593 leases involving annual rentals totaling $229,523.

The area of public lands remaining in federal ownership, including Indian trust and tribal lands, as of June 30, 1945, amounted to about 413 million acres in the public land states and about 365 million acres in Alaska. Approximately 400 million acres of these public lands were vacant, unappropriated, and unreserved as follows: 37 million acres in the states outside of federal grazing districts; 133 million acres within such districts; and 230 million acres in Alaska. During the year 692,000 acres were withdrawn for various public purposes while withdrawals reserving 9,497,000 acres were revoked.

Of the approximately 778 million acres remaining in federal ownership in the states and Alaska, 118 million acres in the states and 363 million acres in Alaska were still unsurveyed as of June 30, 1945. FRED W. JOHNSON,
Commissioner, General Land Office.

PUBLIC UTILITIES. The impact of the Second World War brought about striking increases in the demand for all types of public utility service, but within the limits of this review one utility, electric power, which played an indispensable role in a highly mechanized war, has been selected for special emphasis. During the war the greatest increase in use of electric power within one year occurred in 1943, with total generation almost 221 billion kilowatt hours, an increase of about 32 billion over 1942. This increase within a single year was almost equal to the total production of approximately 33 billion in the World War year 1918. Consumption of electric power by "large light and power" customers increased about 125 per cent between 1939 and 1944. But it was possible to spread much of this increased demand over the 24-hour period and greatly reduce investment in power plants and facilities under what would have been necessary if many war industries had not been operating on a three-shift basis. Also, automatic load control devices, accelerated by the exigencies of war, made possible heavier line loading and greater reliability of lines thus controlled. The Federal Power Commission (FPC) through its emergency powers encouraged the interconnection of power companies and lessened the need for plant expansions by exempting certain utilities from interstate regulation while interchanging power across state lines for the duration. In many instances, daylight saving time meant substantial reductions in the evening peak on power plants. Return of peacetime schedules meant a less favorable ratio of peak demand to total use of electric power. Increase in total use in July 1945 compared with July 1944 was 0.9 per cent, but increase in demand was 3.3 per cent (FPC Release No. 2769, August 27, 1945).

The end of the war did not mean serious problems of reconversion for public utilities, since they continued to sell the same sort of products

or services. The financial loss resulting from sharp decreases in wartime demands did not affect all utilities in the same manner. For example, the marked decline in the use of electric energy by war industries meant a loss in the segment of the market for power that was being served at a comparatively narrow margin of profit, whereas the loss of straphangers by street railway and bus companies meant a marked decline in the profitableness of local mass transportation. But since the ratio of capital invested to annual gross revenues is very high for public utilities as compared with nonpublic utility industries, all utilities experienced unfavorable financial results when the demands of war industries no longer called for the operation of their facilities "around-the-clock," and in many instances for a seven-day week.

Advances in the arts already under way or resulting from the war will affect the different utilities in varying degrees and magnitude, some of which cannot be adequately appraised until many years in the future. Atomic power is obviously in the latter group. On the other hand, with the resumed use of oil tankers, Congressional policy regarding the future use of the "Big-Inch" oil pipeline, laid from the interior to the East by the government during the war, will greatly affect the extent to which natural gas may become a competitor of coal and of electric power generated either by steam or by hydro projects. In the fields of transportation, communication, television, radio, and radio-telephony, both world-wide and local, striking advances have brought to the fore important domestic and international economic and political problems which in turn call for increased efficiency both in the management and the regulation of these utility services.

Judicial Review of Regulation by Commissions.—In AMERICANA ANNUALS for 1943 to 1945 inclusive, certain Supreme Court decisions were characterized which granted greater discretion to public utility commissions in methods followed in rate making and in finding a rate base, provided the "end result" was justified. During 1945, concurring or dissenting opinions of Supreme Court justices indicated that various members of the court are no less convinced than they were when they dissented in earlier closely divided decisions regarding the freedom of utility commissioners to use whatever methods they desired, provided the end result was satisfactory. For example, Mr. Justice Jackson in a concurring decision in a 1945 case (65 S. Ct. 829) in referring to the Hope Natural Gas decision of 1944 said that case "introduced into judicial review of administrative action the philosophy that the end justifies the means. I have been taught to regard that as a questionable philosophy, so I dissented and still adhere to the dissent. But it is the law of this court, and I do not understand that any majority is ready to reconsider it." Some of his statements, quoted below, reveal his dissatisfaction regarding important issues involved in the Hope decision and with issues in the above 1945 case.

"I do not recede from the views . . . that Hope provides no workable basis of judicial review, no key by which commissions can anticipate what rule, if any, will control our review, and no guidance to counsel as to what issues they should try or how they should try them. I think, however, that the majority which promulgated that decision, or a majority of that majority, should be permitted to continue to spell out its application to specific problems until we see where it leads.

"It is difficult for me in these cases, and in some it might be impossible, to follow the rule of Hope in reaching a decision. I have no intuitive knowledge as to whether a given price is reasonable, and my fundamental concept of reasonable price in this industry and how to find it has been rejected by the Court. . . . .

"Far-sighted gas-rate regulation will concern itself with the present and future, rather than with the past, as the rate-base formula does.

* * *

"I should like to reverse this case, not because I think the rate reduction is wrong, but because I think the real inwardness of the gas business as affects the future has been obscured by the Commission's preoccupation with bookkeeping and historical matter. Such considerations may be relevant to rate-base theories, but will not be very satisfying to a coming generation that will look back and judge our present regulatory method in the light of an exhausted and largely wasted gas supply. But as the matter stands I see no legal grounds for reversal."

In another 1945 case (65 S. Ct. 829, 845) four justices dissented on the ground that the FPC in finding a rate-base had exceeded its power by including in the rate-base, properties excluded in the Natural Gas Act. These sharp and close divisions of the court raise the query regarding the future discretion which may be allowed to commissions in determining both a rate-base and a fair rate of return. Recent action by the Supreme Court (65 S. Ct. 716) involves rate making by the Interstate Commerce Commission and the power of that commission over rate bureaus which were charged with violation of the Sherman law. In a 5 to 4 decision the court consented to review on complaint of Georgia and other states alleged freight rate discrimination by railroads. The complaint charged that some 60 rate bureaus or other associations and organizations were being utilized by the railroads to fix rates in violation of the anti-trust laws and that the ICC (Interstate Commerce Commission) was unable to prevent such action. The court held that Congress had not given the ICC jurisdiction to remove rate-fixing combinations from the prohibitions of the anti-trust laws or to regulate or control them; that as there had been no legislation legalizing such rate bureaus since the Sherman Act was passed, "we can only conclude that they have no immunity from anti-trust laws." Among other things the court said, "No adequate or effective remedy other than this suit is suggested which Georgia can employ to eliminate from rate making the influences of the unlawful conspiracy alleged to exist here." That future rate making by utility commissions is involved in this case is seen in the contentions of the minority opinion of the court. The four dissenting justices (Chief Justice Stone joined by Justices Frankfurter, Jackson and Roberts) maintained that if an original complaint of this sort succeeded it would "only mean the breakdown of the unified system of fixing rates by commission action which Congress has ordained by the Interstate Commerce Act"; that "such suits cannot but fail to bring chaos into the field of interstate rate making."

Public Utility Holding Companies.—As indicated in AMERICANA ANNUALS for 1944 and 1945, the Supreme Court had not, up to that time, reviewed any cases involving the so-called death sentence provisions of the Holding Company Act of 1935 because the court lacked a quorum, four justices having disqualified themselves. The court, later

in the year, announced that it would hear such cases in its next term, but after the resignation of Mr. Justice Roberts the court indicated that these cases were again placed upon the deferred docket. In April 1945 the Securities and Exchange Commission in its Tenth Annual Report presented detailed information regarding divestment of holding companies from 1935 to June 30, 1944. A total of 266 electric, gas, and non-utility subsidiary companies with total assets of $3,700,000,000 were divested during the decade. After divestment, 232 companies with total assets of $2,200,000,000 were no longer subject to the Holding Company Act, and 34 companies with total assets of $1,400,000,000 were still subject to the act by reason of their relationship to other registered companies. The status of each of the major holding company systems under the "death sentence" provisions of the act are given in the above report.

Competitive Bidding in Sale of Utility Securities.—The competitive bidding rule of the SEC (Securities and Exchange Commission) in the sale of public utility securities became effective in May 1941. The commission reported in its Tenth Annual Report that since 1941 "except in one or two instances" insurance companies and other institutional investors have not submitted bids for such issues; that since its rule became effective "there has been a substantial decrease in the relative amount of public utility securities that have been privately placed"; that prior to the adoption of the rule, utility securities were sold "by underwriters on the basis of a 2-point spread"; that the weighted average spread has been but 1.21 for the period since adoption of the rule.

Federal Power Developments.—Allocation of costs for the Bonneville Project was made by the Federal Power Commission July 13, 1945 (Release No. 2740). About $86,000,000 out of a total cost of approximately $112,000,000 as of July 1, 1944, was allocated to power as the government's capital investment in the Bonneville Project to be recovered out of electric revenues. The majority decision of the commission relied upon the cost analysis of its chief engineer who maintained in his 61-page report that the Bonneville Project as authorized is "for the purpose of improving navigation on the Columbia River and for purposes incidental thereto." "With this legislative determination," the chief engineer said, "the question as to the primary purpose of this project is a settled matter." Commissioner Smith, expressing his view that Bonneville is primarily a power project, presented a vigorous 36-page dissent in which he stated that $100,000,000 should be allocated to power. He characterized the interpretation placed upon the statute by the chief engineer as "strained and unwarranted construction." "It seems to me plain," he said, "that in describing navigation as a 'primary' purpose Congress was not undertaking to establish a standard for cost allocation; it was simply following the familiar pattern dictated by considerations of constitutionality." He contended that it would have been "purposeless" for Congress to direct the commission to allocate costs if it was the intent of Congress to decide it by the language of the act, leaving to the commission "no function to perform except that of translating some adjectives into percentages and dollars."

Development of river valleys was recommended by President Truman in his message to Congress on Sept. 6, 1945: "If these rivers remain scourges of our Nation, it is only because we do not have the prudence to harness them for the benefit of our people. . . . I hope that the Congress will proceed as rapidly as possible to authorize regional development of the national resources of our great river valleys." Partly because of important geographical differences in the regions and thus in economic problems involved in the establishment of additional river valley authorities, there are marked differences of opinion regarding the use of water for different purposes, such as irrigation, navigation, and for generation of electric power. But there are also sharp conflicts of opinion regarding the degree to which there is to be highly centralized federal control of river valley problems. (See below.) Government control of the financial transactions of federal authorities was made a part of recent legislation. In the act of Feb. 24, 1945, which separated the Federal Loan Agency from the Department of Commerce and restored the former to independent status, it was provided that the comptroller general should audit the accounts of all government corporations and submit to Congress such information as he may deem necessary to keep Congress informed of the operations and financial condition of such corporations. The act provides that his report shall "also show specifically every program, expenditure, or other financial transaction or undertaking" which in his opinion has "been carried on or made without authority of law." (U. S. Code Cong. Service 1945, p. 3.)

Financing Rural Electrification.—The Rural Electrification Administration as of Dec. 31, 1944, had made loans to 904 borrowers consisting of 831 co-operatives, 54 public bodies, and 19 private utilities. Of cumulative net allotments outstanding ($517,000,000) approximately $456,000,000 (88 per cent) was for distribution systems. Approximately $12,000,000 was to finance consumer installations and refrigeration lockers.

Conflict between Federal and State Regulation.—Proposed river valley power authorities have brought to the fore the issue regarding the extent to which such authorities are to be under federal or state control. Proposals have been made in some instances for the purchase by the state of federal power projects within the state, thus bringing about state control of such hydro-power projects. Other proposals where a number of states are involved are for federal regional control over such authorities rather than highly centralized federal control.

One conflict between federal and state regulation during the year 1945 was continuation of the controversy regarding the jurisdiction of the FPC and the state commissions over the control of public utility accounting and also further controls growing out of such accounting requirements. In a case involving the control of rates by federal or state authority the Supreme Court in February 1945 held (45 S. Ct. 565) that the FPC, which ordered a reduction in wholesale interstate rates, had no power to order refunds to the customers in four Iowa towns; that retail rates to consumers was a matter to be decided by state, not federal, authority.

CLYDE O. RUGGLES,
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PUERTO RICO. An insular possession of the United States in the West Indies, with a population (1940 census) of 1,869,255 and an area—including several smaller islands in the vicinity—of 3,435 square miles, divided into 77 munici-

palities. The population in 1940 was 1,869,255. The chief cities are San Juan, the capital (pop. 169,247), Ponce (105,116), Mayaguez (76,487). Caguas (24,377), Arecibo (22,134), and Rio Piedras (19,935). The executive power resides in a governor appointed by the president of the United States. There is a governor's Executive Council of 7, a Senate of 19 members, and a House of Representatives of 39 members. Puerto Rico is represented in the United States Congress by a resident commissioner elected by the people. Jesus T. Piñero, candidate of the native Popular Democratic Party, a wide coalition including support of the Confederation of Labor (CGT), was elected to this office on Nov. 7, 1944, replacing Bolivar Pagán, candidate of the native, conservative Union Republican Party. The governor is Rexford Guy Tugwell, appointed by former President Franklin D. Roosevelt in 1941.

Education.—Education is compulsory between the ages of 8 to 14. In 1942–43 there were 5,491 classrooms in 2,402 school buildings, and 302,806 public day school pupils. There are also 54 accredited private schools. The University of Puerto Rico is at Rio Piedras, near San Juan. Total appropriation for education in the fiscal year 1942–43 was $7,721,255.65.

Agriculture, Commerce, and Industry.—Sugar cane growing is Puerto Rico's most important agricultural pursuit. Annual production of sugar is about 1,000,000 tons, nearly all normally exported to the United States. Coffee production averages 235,000 hundredweight. Other crops are fruits and vegetables, tobacco, cotton, and coconuts. A large part of the food consumed in the island is imported. Principal industries are sugar refining, and straw hat, cigar, and rum manufacturing.

Gold, silver, copper, iron, tin, mercury, platinum, and nickel are found in the island. Salt production is important.

Imports for the fiscal year ending June 30, 1941, were valued at $153,259,895, and exports at $101,580,919.

Economic conditions declined in the immediate postwar era, and while it was reported in June 1945 by the insular bureau of statistics that approximately 110,000 persons remained unemployed out of 613,133 employable persons, some progress was reported on the island's ambitious industrial program, in spite of a lack of raw material and venture capital, and a limited domestic market. The Puerto Rico Glass Corporation began production of bottles on January 10 in a plant scheduled to produce 389,000 gross tons of bottles annually; construction of a clay-products plant was begun in summer; and a large pulp and paper factory began operations in the fall. Plans were completed for a paperboard mill having a capacity of 8,000 tons; for expansion of the ceramics industry; for the manufacture of wallboard from the 2,700,000 tons of green bagasse (crushed cane-stalk) produced annually by the sugar industry; and for a cotton weaving plant to produce 3,000,000 pounds of coarse cloth.

Communications.—There are 1,830 miles of paved highways, 385 miles of railways, 99 post offices, 5 commercial radio stations, and 20,639 telephones. Air service to and from Puerto Rico was considerably augmented in 1944 and 1945.

Finances.—A six-year financial program for Puerto Rico was submitted to the insular legislature by the Puerto Rico Planning Board on Feb. 21, 1945. An appropriation of $39,855,000 was recommended for the Puerto Rico Development Company (established by act of legislature in 1942 to develop the island industrially), for a six-year period beginning with the fiscal year 1945–46. Of this amount, it was recommended that $20,000,000 be allocated to the company for the fiscal year 1945–46. An appropriation of $17,000,000 was passed by the legislature and approved by the governor for the current year.

Receipts from all sources in 1944–45 totaled $134,929,001.42, which added to the balance in the treasury at the beginning of the fiscal year of 1944–45, namely $109,924,892.47, amounted to $244,853,893.89 including both general and trust funds. Disbursements during 1944–45 from general and trust funds amounted to $108,248,512.63, leaving a balance of $136,605,381.26 in the treasury at the beginning of the fiscal year of 1945–46. On June 30, 1945, the bonded debt of the territory totaled $13,064,000. There was no floating debt.

Principal Events.—Considerable dissatisfaction continued to exist in 1945 over the fact that Puerto Ricans were still not allowed to elect their own governor, or to have final word on their laws. Both the governor, appointed by the president of the United States, and the president himself, continued to have veto power over all acts of the insular legislature. Moreover the inhabitants, most of them American citizens, continued to lack representation in Congress other than through a resident commissioner, who was allowed to speak on the floor, but was not entitled to vote. For these and other reasons, including dissatisfaction with economic conditions, independence remained the foremost political issue on the island.

The overwhelming victory in the November 1944 elections of the Popular Democratic Party of Puerto Rico, which advocated independence, led to widespread supposition that in 1945 its leader, Luis Muñoz-Marín, would lead an uncompromising fight on this issue. Instead, however, Mr. Muñoz-Marín, together with Jesus T. Piñero, newly elected resident commissioner in Washington, drew up a bill providing for a plebiscite on three alternatives: independence, statehood, or dominion status. Senator Millard E. Tydings, chairman of the United States Senate Insular Affairs Committee, did not wholly approve of this measure, but he agreed to introduce it as the Tydings-Piñero bill, No. 1002, in the Senate, where it encountered immediate opposition, as it did in Puerto Rico also. Statehood for Puerto Rico was opposed in Congress because it would add 2 senators and 10 representatives to the national legislature, already considered too large; and statehood was furthermore found to be unconstitutional, as was dominion status. The provision for independence in the bill, moreover, left the United States in complete military jurisdiction, and left the island's economy in bonds to the United States also. Eventually the bill was withdrawn and replaced by the Tydings independence bill (S. 227), which Dr. Gilberto Concepcion de Gracia, president of the Puerto Rican Pro-Independence Congress, declared would be acceptable to Puerto Ricans with certain amendments, including reversion of the army, navy, and aviation bases to Puerto Rico, all future arrangements to be made by treaty; and new economic arrangements through maintenance of a free market on the basis of imports and exports, measured in dollars, and other commercial arrangements to be concluded by treaty. In September, President Harry Truman, after meeting with Governor Tugwell, authorized the latter to

tell Puerto Ricans that he felt they were entitled to chose their future form of relationship to the United States as a reward for their part in winning the war, Puerto Rican boys having fought both in Europe and in the Pacific.

Governor Tugwell met with native opposition on two important measures in 1945. In May it was reported he had vetoed a joint resolution introduced in the Puerto Rican Senate by Dr. Rafael Arjona Saca for re-establishment of the Spanish language in the island's schools. Imposition of the American language on the Spanish-speaking people of the island had been widely resented. A bill written by Governor Tugwell making collective bargaining practically illegal was immediately signed by him in the face of opposition raised by the Puerto Rican Confederation of Labor, who complained that it wiped out 25 years of labor progress. The bill remained unenforced. Harold L. Ickes, Secretary of the Interior, who supervises Puerto Rican affairs, met with native criticism also in 1945 for failing to advocate independence for the island while petitioning the United States delegation to the United Nations Conference at San Francisco to work for a clause in the security charter guaranteeing the independence of colonial peoples.

An appropriation of $17,000,000 was approved on Feb. 21, 1945, for industrial development; and in May, Governor Tugwell signed a bill passed by the insular legislature granting $21,000,000 of insular treasury funds for the acquisition of land by the Land Authority, under which corporate land holdings of more than 500 acres have been declared unlawful.

PULP AND PULPWOOD. See PAPER PRODUCTION.

PYLE, Ernest (Ernie) Taylor, American newspaperman: b. Dana, Ind., Aug. 3, 1900; killed by Japanese machine-gun fire, Ie Island, near Okinawa, April 18, 1945. Chronicler of the human side of the war and spokesman for the average soldier everywhere, Ernie Pyle was America's most famous and beloved correspondent of the Second World War. In the words of President Truman: "No man in this war has so well told the story of the American fighting man as American fighting men wanted it told."

Educated at Indiana University, where he majored in journalism, Pyle left college shortly before graduation in 1923 to take a job as cub reporter on the La Porte (Indiana) *Herald.* After five months, he moved on to the Washington (D.C.) *Daily News,* first as reporter, later as desk man; and in 1926–27 he worked as desk man for the New York *Evening Post* and the New York *Evening World.* He was aviation editor for the Scripps-Howard Newspapers from 1928 to 1932, and then managing editor of the Washington *Daily News* from 1932 to 1935. In 1935 he became a roving reporter for Scripps-Howard. Together with his wife, he covered some 200,000 miles of the Western Hemisphere, each day's experience providing human interest material for a letter home. Pyle went to England in November 1940 and sent back vivid descriptions of the Luftwaffe's bombing of London. In the summer of 1942 he was with American troops stationed in England and Ireland, and when these troops went into North Africa, and later into Sicily and Italy, Pyle accompanied them, writing his column in and out of foxholes, and telling simply and sometimes eloquently what he saw and of the men who did the fighting. In June 1944 he was on hand for the Normandy invasion, but in September of that year he returned to the United States after having written: "I've had all I can take for a while." He returned to find himself famous and wealthy. But in January 1945 he was headed for the Pacific front. "I'm going simply because there's a war on and I'm part of it," he said in his column, "I've got to —and I hate it." At the time of his death, his dispatches were appearing in 393 daily newspapers with a total daily circulation of 13,390,144.

Pyle's columns were collected into three books: *Ernie Pyle in England* (1941); *Here Is Your War* (1943), which sold over a million copies; and *Brave Men* (1944), which sold 875,000 copies. In 1943 he won the Pulitzer Prize and in 1944 and 1945 the Raymond Clapper Memorial awards for distinguished war correspondence. Mrs. Geraldine Pyle, known as "That Girl" to millions of Pyle's readers, died at the Pyle homestead in Albuquerque, N.M., on Nov. 23, 1945. Her age was 45.

Q

QATAR. See ARABIA.

QUARANTINE SERVICES. See PUBLIC HEALTH SERVICE, UNITED STATES.

QUEBEC. The largest Canadian province, embracing an area of 594,534 square miles, or 16.1 per cent of the total area of Canada, of which 351,780 square miles were acquired by the annexation of the territory of Ungava in 1912 under the Quebec Boundaries Extension Act. Three groups of mountains form the orographic system of the province: (1) The Laurentians, Canada's highest mountains east of the Rocky Mountains, skirting the St. Lawrence from Labrador to near the city of Quebec where they gradually recede and leave a widening lowland area between them and the river as far as the Ottawa River. (2) Another chain of mountains, the Appalachians, includes the territory lying east of a line running from Lake Champlain on the Vermont border to the city of Quebec, thence down the St. Lawrence Valley to the gulf and through the Gaspé Peninsula. (3) The Monteregians, deriving their name from Mount Royal at Montreal, are situated in the western portion of the St. Lawrence lowlands and are composed of several hills of igneous origin ranging from 715 to 1,755 feet high. Agricultural land covers an area of 68,350,000 square miles, 10 to 13 per cent of the total surface, of which 364,370,000 square miles is forested land. The census of 1941 fixed the population of the province at 3,331,882; it is estimated to have increased to 3,506,000 in 1943. People of French origin constitute 80 per

cent of the whole. The rural population is about 35 per cent. In 1941, Quebec contained 28.96 per cent of the total population of Canada.

Government and Administration.—The government is composed of a lieutenant governor, named by the government of Canada, an Executive Council, a Legislative Council of 24 members appointed for life by the lieutenant governor, and a Legislative Assembly elected for five years. The present lieutenant governor is Maj. Gen. the Honourable Sir Eugene Fiset. The Executive Council is composed of 21 ministers, 7 of whom have no portfolio. The prime minister is Maurice L. Duplessis, leader of the Union Nationale Party. The position of the parties in the legislature following the elections of August 1944 is as follows: 48 Union Nationale, 48 Liberal, 37 Bloc Populaire, 3 Co-operative Commonwealth Federation (CCF), 1. One constituency is vacant. In the Dominion Parliament, the province is represented by 24 members in the Senate and 65 members in the House of Commons.

For the fiscal year 1943–44, the ordinary revenue of the province amounted to $93,036,-713.13. Ordinary expenditure was $82,068,-237.36 and capital expenditure $9,191,611.19, leaving an overall surplus of $1,285,159.70. The net public debt was $305,078,048.32.

Education and Public Health.—The department of education is under the direction of a superintendent named by the lieutenant governor in council and is subordinated to the jurisdiction of the provincial secretary. In 1943–44, there were 1,959 school municipalities having under their control 8,572 schools distributed as follows:

	Catholic	Protestant	Total
Elementary schools	7,077	414	7,491
Complementary and intermediate schools	795	78	873
Primary superior and high schools	152	56	208
	8,024	548	8,572

To these must be added 532 independent schools providing education in the same grades. If we include normal schools, secondary, arts and crafts, technical, special schools, and universities, we find a grand total of 9,976 institutions of education; 25,771 persons were engaged as teachers and 719,735 students were enrolled.

In 1943–44, $9,940,000 was allotted to the department of public education. In addition, grants totaling $6,000,000 were made to various educational institutions by the department of the provincial secretary, the department of agriculture, the department of lands and forests and the department of public works. It is estimated that in 1943–44, a grand total of $52,000,000 was appropriated by the various school authorities, municipal or provincial, for educational purposes.

Health conditions show a constant improvement. The average death rate for the five main communicable diseases which was 79.9 in 1926 had decreased to 15.7 in 1943. The industrial hygiene division of the department of health and social welfare has undertaken the task of promoting the organization of medical services in industry and has fostered education concerning hygiene in lumber camps. A great effort is made by the department to check the spread of venereal diseases.

Value of Production by Industries in 1942.—Production by industries is shown in the following table:

Industries	Gross value	Net value
Agriculture	$ 325,567,000	$ 233,812,000
Forests	299,728,675	165,274,650
Fisheries	5,506,973	3,892,537
Trapping	3,894,630	3,894,630
Mining	307,871,770	138,100,940
Electric stations	78,371,204	78,325,236
Construction	205,400,748	110,790,354
Custom and repair	57,097,000	38,743,000
Manufactures	2,333,303,012	1,059,873,943
	$3,616,741,012	$1,832,707,290

Agriculture.—The farm value was estimated at $742,192,561 in 1941 and the number of farms occupied was 154,804. During the same year, the area under cultivation was 6,802,900 acres. Grants made for agricultural purposes by the department of Agriculture reached the amount of $6,756,845 in 1943–44. Reports filed by the 544 farmers' co-operatives show that sales transacted by these societies amounted to $37,558,-676.00. The gross value of agricultural production was $350,463,000 divided in the following items:

Field crops	$148,317,000
Farm animals	73,338,000
Wool	618,000
Milk	85,578,000
Fruits and vegetables	9,020,000
Poultry and eggs	22,774,000
Fur farming	1,613,000
Maple products	4,199,000
Tobacco	1,478,000
Flax fibre	1,922,000
Clover and grass seeds	826,000
Honey	810,000

Forests.—In 1942, the capital invested in manufactures using wood and paper as chief component materials exceeded $450,400,000, and the gross value of products amounted to $322,394,-000. There were 1,947 sawmills in operation. About 105,700 persons were employed in mills, factories and in lumber camps.

Mining.—The value of the output from mines and quarries of the province amounted in 1943 to $101,859,559 subdivided as follows:

Building materials	$12,475,910
Metals	59,727,333
Nonmetallics	29,656,316

Gold held first place with an output of 927,-620 ounces worth, at the standard rate, $19,-175,607 to which must be added exchange equalization of $16,537,763.

Fur Production.—With a production, valued at $4,562,354, Quebec ranked second among the provinces in 1942–43. At the end of 1943, there were 2,129 fur farms in the province of which 1,972 were fox farms.

Fisheries.—In 1943, the value of the inland fisheries was estimated at $805,302 and that of the sea fisheries at $5,012,159.

Hydraulic Resources.—Extraordinary development in the hydroelectric industry in 1943 explains the increase of more than 1,000,000 horsepower in the production capacity of the turbines installed which increased from 4,839,-543 hp. in 1943 to 5,847,322 hp. in 1944.

Manufactures.—The number of industrial establishments in 1942 reached 9,342 paying salaries and wages to 399,017 persons to the amount of $536,329,170. Invested capital was estimated at $1,883,353,668 and the gross value of the products at $2,333,303,012.

Communications and Transportation.—The total mileage of improved roads is 22,670. Railways have a length of 5,203.44 miles. More than 364,000 telephones are in use; the postal service has 2,604 offices and the telegraph companies 926.

Trade.—In 1943, the value of the export trade of the province reached $727,629,075 and that

of the import trade $560,206,371. Retail trade amounted to $916,132,000 during the same year.

Banks and Insurance.—Banks in the province operate under federal charter. In 1943, the 10 chartered banks had 1,041 branches in the province. Two savings banks operating under a provincial act had respectively deposits accounts of $17,789,487.37 and $96,287,239.47. The Co-operative People's Banks or Credit Unions, to the number of 627 in 1943, had total assets of $48,-854.549. An amount of $68,795,752 has been paid to life insurance companies and $6,225,-593 to mutual benefit associations.

Principal Events of 1945.—The United Nations Food and Agricultural Organization (FAO) opened its conference at Quebec on October 16, when delegates of 30 out of 45 eligible nations signed its charter. See also CANADA.

EUGENE FISET,
Lieutenant Governor, Province of Quebec.

QUEENSLAND. See AUSTRALIA.

QUISLING, Vidkun Abraham, former "führer" of Norway under the Germans: b. Fyresdal, Norway, July 18, 1887; d. Oct. 24, 1945. Vidkun Quisling, whose name has become synonymous with treachery, died before a firing squad in Akershus Fortress, Oslo. He had been brought to trial the preceding August, charged with treason, illegal action against the Norwegian government and constitution, and "contributing to the death of others." Convicted on September 10, he was sentenced to death, and his subsequent appeal denied.

Quisling actively collaborated in the German invasion of Norway in April 1940, using his authority as an army officer to hasten his country's collapse, and in September 1940, he was rewarded with appointment as sole political head of Norway and chief of a state council of thirteen Nazi-dominated commissioners. Destined for a military career, Quisling trained at Norway's war college, and entered the army in 1911. By 1931 he was a major of field artillery. He also served in the diplomatic service, as military attaché at Leningrad, 1918–19, and at Helsingfors, 1919–21. In May 1933, after Hitler's assumption of power in Germany, Quisling organized his own political party, the National Union, patterned after that of the Nazis, and pledged to suppression of communism and the freeing of Norwegian labor from unionism.

R

RACE PROBLEMS. See LAW, Section 9.
RADAR. See PHYSICS—*Acoustics;* RADIO.

RADIO. In 1945, the veil of secrecy was lifted from the most spectacular radio device so far developed—radar. This unique equipment uses high-frequency radio waves to determine the presence and location of unseen objects in space. In operation, a radar system generates high-power radio waves that are projected from an antenna, usually in a narrow beam. It then picks up the waves which are reflected back from objects in its range, and converts these into a pattern on a fluorescent screen like that in a television picture tube. In addition, electrical circuits accurately time the echoes from the unseen objects, measure the distance, and give the exact position. Other circuits cause the antenna to follow the object automatically as it moves.

Two general types of radar are used. One is the search type which scans across distant areas to detect the approximate position of a target; and the other, the fire-control type, which uses a narrow beam to accurately determine the position of the target. When this is done, shells can be aimed or bombs released at the proper instant. Some radars employ a low frequency in searching for and detecting enemy objects, then switch to a higher frequency to determine the exact location of the object.

A radar set at Pearl Harbor gave warning of the approach of the Japanese planes. This was a long-range search type, as was the early model that warned England of German bombers and enabled the "so few" RAF airmen to be at the proper point at the right time to intercept the enemy planes. In spite of their great bulk and weight, requiring four or five trucks, these long-range search sets have been set up within several hours after being put ashore on a beachhead.

For antiaircraft protection, the fire-control radar is invaluable. This set locates enemy planes at relatively short distances and enables the guns to be aimed at unseen targets above the clouds, in fog, or darkness. Connected to an electronic computer, the radar locates the enemy planes and anticipates their future position on their course. The AA guns then place the shells at this point and at the same instant that the plane arrives. On the Anzio beachhead, German night bombers pounded the American troops without serious loss of planes for a while. The older radars that were first used in that operation were almost useless because the Germans effectively jammed the air with radio waves of their own that interfered with the radar waves. A new fire-control radar was landed that could not be jammed by the enemy. After a few nights of operation, so many enemy planes were downed that the night attacks ceased. The operation was too costly for the Luftwaffe.

Even American gun crews refused to believe in the uncanny ability of radar. On a new destroyer heading into Pacific action, the crew persisted in using optical gun sights during target practice despite the commander's orders to close their eyes and use radar. On one peaceful but cloudy day, the radar unit picked up something above the clouds and the commander ordered them to commence firing even though they could see or hear no plane. After five minutes of apparently aimless antiaircraft fire at dense clouds, a Japanese plane came spiraling downward in flames.

For peacetime industry, radar can be used by ships and airplanes for navigation through fog and darkness. Radar units have been ordered by the United States Maritime Commission for installation in merchant ships now being built. With these, the navigator can locate shore lines, land masses, other ships, and obstacles from 200



Courtesy Radiation Laboratory, Massachusetts Institute of Technology

Radar controller at his scope. Spots of light on the scope show the location of planes. Map of the area covered by the scope is traced on the scope's face, and is shown in greater detail by larger map at controller's elbow.

yards away up to 30 miles distant. A control console in the wheelhouse contains a cathode-ray tube indicator that shows concentric rings on its screen to indicate the range. The ship's position is indicated in the center of this screen. A range switch permits the navigator to use a 30-mile range until the ship approaches to within six miles of the obstacle when a six-mile range is used. Further localizing is made with a two-mile scale and objects can be observed down to 200 yards on this setting.

Pulse Time Modulation.—A new method of transmitting intelligence through space was publicly demonstrated in 1945. In this technique, known as pulse time modulation or PTM, a multitude of telephone conversations or radio programs can be sent over one transmitter and antenna. For the initial demonstration, 24 telephone conversations were fed into a single ultra-high frequency transmitter and sent over an 80-mile path through the air to a receiver that sorted them automatically and fed them to the proper telephones.

Pulse time modulation differs from the two systems now in use, amplitude modulation and frequency modulation, in that both the amplitude and frequency of the signal are constant. Instead of varying these, a number of pulses are transmitted and the time interval between them is varied at a rate that corresponds to the original sound frequencies. Each pulse provides a sound channel and the 24 pulses follow in sequence a marker pulse. For normal conversations, the sequence is repeated 8,000 times per second and switching of the channels is done by rotating an electron beam past 25 electrodes in a specially designed electron tube. Synchronizing of the transmitter to the receiver is accomplished by the marker pulse. The advantages of the new system include elimination of cross-talk between stations and reduction of static and other forms of interference.

Mountain-top Radio Relay.—One radio company is going ahead with plans for a peak-to-peak network in the West for FM, television, and other types of wireless communication which might make telephone and telegraph wires obsolete. Experimental high-frequency relay broadcasting (30,660 and 39,540 kilocycles) will be done from eight famous mountain peaks of the West: Mt. Adams, Mt. Shasta, Mt. Tamalpais, Mt. Whitney, and Mt. San Gorgoni, on a line parallel with the Pacific coast, plus Wheeler Peak, Nev., Kings Peak, Utah, and Grays Peak, Colo. The experiments are expected to measure field strength and interference under various conditions, and may prove that a satisfactory television and FM network, without land lines, can be developed extending from Seattle through San Francisco to Los Angeles, with an eastward branch for the Salt Lake City and Denver areas. Television and FM programs would be relayed from one mountain-top station to the next for rebroadcasting at each city on the network. Likewise, programs originating at relay points would be fed into the chain. Experimental stations are planned in Boston and New York as the eastern foundation for the network. Relay stations would link Detroit, Chicago, and other eastern cities.

Mobile Radio Telephones.—A telephone on the dashboard of any car or truck is a new service announced in 1945 by the Bell System. Approved by the Federal Communications Commission, this permits a car on the highway to use radio equipment for calling the home or office while in motion. Subscribers' cars will be equipped with low-power transmitters and receivers operating on fixed wavebands. Their link to existing wired phones will be through radio central offices where higher-powered transmitters and receivers would be located. The effective range of equipment will be limited to a 25 to 35-mile radius. A number of vehicles will share each channel, giving them the radio equivalent of a party line. The radio central office will have a number of receivers scattered about the city to insure clear reception of the voice signals from the low-power mobile transmitters.

When a subscriber wishes to call a car, he will dial the operator who will plug in the car's radio channel and press a lever to ring a bell or light a lamp on the car's dashboard. Electrical impulses will go from the switchboard to the transmitter and there be transformed into radio waves which do the ringing or lighting. This apparatus will be selective, so that only the phone of the party or car called will ring—not those of other cars having the same waveband. In the car will be a handset telephone. When this is lifted off its hook voice signals will go out through the car transmitter and be picked up by one or more of the central office radio receivers, and relayed from them by wire to the radiophone switchboard, and then to the subscriber. This type of service is operating for emergency use by utility companies in New York and Boston today. Its expansion, to include commercial motor fleets, doctors, or anyone else requiring mobile communication, awaits only manufacture of needed equipment and Federal Communications Commission approval of specific projects. Customers may be given the option of renting their mobile radio equipment from the Bell System on a monthly basis, or of buying it outright.

New FM Frequencies.—The Federal Communications Commission announced new regulations and frequencies for FM (frequency modulation) stations in 1945. The commission will utilize 70 channels in the new commercial FM band (92–106 megacycles) and add ten more channels (106–108 mc.) to the thickly populated northeastern part of the United States. The country will be divided into two segments: Area 1 covering the northeastern portion, and Area 2 the remainder. Sixty commercial FM channels have been earmarked for metropolitan stations and 20 for community stations in Area 1. No rural stations will be licensed in Area 1. The power of metropolitan stations in Area 1 will be limited to 20 kilowatts radiated power, and antenna heights will be restricted to 500 feet, except in unusual cases. Community stations generally will be limited to 250 watts radiated power and antenna heights of 250 feet. Rural stations, which may operate in Area 2, will be licensed to cover large areas and will be of high power, according to FCC engineers. All FM stations will be licensed for unlimited time operation, but required to operate a minimum of six hours daily at the start.

Home Radio Telephones.—Personal two-way radiophone communication between civilians was also provided in 1945 by the frequency allocations of the Federal Communications Commission. Assigned to the band of 460 to 470 megacycles, the new personal sets would permit a person to own and operate a two-way radiophone for talking to his friends that own similar stations. Uses for such sets are almost numberless around the home and farm, for contacting farmers in the fields, and in business for routing store deliveries and pickups in a town. Sets of this

type may come in several sizes and operate from either batteries or the regular house current supply. For fixed locations, the electric light line can provide power; for portable mobile use, batteries are necessary. The extreme usefulness of this latter is shown by the extensive use of handie-talkie two-way radios by the army during the war. Firemen used similar portable radio transmitter-receiver sets at the fire which damaged the 78th and 79th floors of the Empire State Building in New York after a B25 army bomber crashed into it. The fire fighters, 900 feet in the air, kept in touch with firemen in the street and with Fire Headquarters by means of walkie-talkie radios.

International Broadcasting.—In 1945, United States government short-wave broadcasts to the other Americas were 280 program-hours weekly, as compared with one half hour in 1941. One third of the total operating time of the 36 United States short-wave broadcast transmitters is used for Spanish, Portuguese, and English programs beamed south of the border to radio audiences in all of the 20 other American republics. The strength of the signal from the United States is tested throughout the broadcast day by signal intensity monitoring stations which have been installed at key points in Guatemala, Colombia, Peru, Chile, Uruguay, Brazil, and Puerto Rico.

In international communications, the army spent $162,000,000 overseas and in 1945 the navy budgeted $480,000,000 for the purchase and maintenance of communications items.

Pushbutton Crystal Receivers.—Quartz crystals for radio equipment are usually individually processed to increase the activity of vibration. As a result, each plate exhibits certain individual characteristics that are different from sister plates of the same dimensions. In a new technique as many as 100 plates can be processed as a group to final square-edge dimensions within 0.0002 inch tolerance. All the blanks for a particular frequency are then exactly the same at the finishing stage. This minimizes the tendency to lap or etch beyond the desired thickness for that frequency and avoids most of the failures encountered in temperature cycling. Such a mass production technique may lead to the use of the quartz wafers in home radio receivers to eliminate the drifting away from the station frequency that pushbutton models exhibited. Each desired frequency would have one crystal so that a ten-station pushbutton set would use ten crystals. In the past, the amount of hand work by skilled operators brought the cost of ten crystals too high to be incorporated in any but a high-priced receiver.

X-Rays Boost Crystal Production.—A new production technique for quartz crystals uses X-rays to adjust the quartz crystal plates used in radio transmitters to final frequency at a rate of 30 to 50 cycles per minute. Quartz plates for the 6 to 8-megacycle range can be lowered up to 3 kilocycles in frequency simply by exposure to X-ray beams. Frequency can be checked continually during the treatment and the crystal can be removed from the beam when it reaches the correct frequency. The X-ray equipment developed for this purpose employs a new high-intensity water-cooled X-ray tube. One crystal is exposed at a time. The change in frequency is permanent throughout and beyond any temperature range that the crystal is apt to experience. Factory applications of the technique include: recovery of over-shot crystals that have been carried too far in finishing; precise adjustment of standard crystals for use in calibration and in testing; manufacture of precision crystals for frequency and time standards; for a crystal which is considered stable, precise adjustment to final frequency by this method without the possibility of further aging.

Power-Line Radio.—Electric utility companies use power-lines instead of the ether to provide a highly reliable type of communication that insures privacy of conversations. In addition the radio waves along the wires are used to actuate electronic switching, high-voltage line-coupling equipment and other developments that have been given an impetus unequaled in more normal times. The frequencies usually utilized range from 50 to 150 kilocycles. The radio-frequency energy is confined almost entirely to the wire lines and not radiated into space as is common in radio broadcasting. This results in greater efficiency and makes it possible to transmit greater distances with less high-frequency energy. An important application of power-line carrier is to provide reliable, high-quality voice communication between various points on the system, such as generating stations and dispatchers offices, or between dispatchers' offices of interconnected systems. See also ELECTRICAL AND ALLIED DEVELOPMENTS.

VIN ZELUFF,
Associate Editor, Electronics.

RADIO-RELAY TELEPHONY. See TELEPHONE PROGRESS, Section 5.

RAILROAD CAR STABILIZER. A device developed by Westinghouse Electric Corporation for taking the "bounce" out of railroad cars. It is said to improve riding qualities more than two to one over cars not so equipped. Describing it, Clinton R. Hanna, associate director of the Westinghouse laboratories, said: "In three thousandths of a second it sizes up the direction and extent of an impending bounce and takes appropriate counteraction almost before it gets started. A sensitive floating weight picks up the first signs of any disturbance that might get through to the body of the car and acts to increase oil pressure in a cylinder. The system is so devised that pumps can cause pressure in an expanding as well as a contracting cylinder. This pressure, exerted at just the right time and in the proper direction to oppose the disturbance, helps the wheels of the car move up and down at the same time it holds the body still." Cylinders installed horizontally on the car also act similarly to restrain the normal tendency of the car to sway from side to side.

RAILROADS, American. Although the fighting phase of the war terminated in the European theater in June and in the Pacific theater in August, the railroads of the United States continued throughout the year to handle an immense volume of war traffic. Indeed, the movement of troops in special trains was even greater following the cessation of hostilities than before, and troop movements continued at record levels to the end of the year.

In March and April the railroads handled a greater volume of freight traffic (126,024,000,000 ton-miles) than in any corresponding period in history. Preliminary freight traffic figures for the calendar year, compared with previous years, indicate that the 1945 volume was about equal to that of 1942, but was below that of 1943 and 1944, which marked the all-time peak. The following ton-mile figures are based on Class I railroads:

Year	Ton-miles	Per cent above 1939
1939	333,438,412,000	....
1940	373,253,197,000	11.9
1941	475,072,001,000	42.5
1942	637,983,503,000	91.3
1943	727,075,495,000	118.1
1944	738,037,455,000	121.3
1945 (est.)	680,000,000,000	103.9

Passenger traffic was below that of 1944, the all-time peak year, but was approximately the same as in 1943. It was about four times the prewar volume, as indicated below:

Year	Passenger-miles	Per cent above 1939
1939	22,651,334,000	....
1940	23,762,359,000	4.9
1941	29,350,359,000	29.6
1942	53,658,615,000	136.9
1943	87,819,503,000	287.7
1944	95,467,024,000	321.5
1945 (est.)	91,000,000,000	301.7

From Dec. 1, 1941, through August 1945, a period of 45 months, the railroads handled a total of 43,730,000 servicemen and servicewomen in special troop trains or in special cars attached to regular trains. This comprised more than 97 per cent of all troop movements in the United States during the war.

One of the most exacting tasks which the railroads were called upon to perform was that of moving hospital trains and of transporting wounded and sick servicemen in regular trains from ports of embarkation and to and from military bases and hospital centers. During 1944 and 1945, the railroads transported 502,052 wounded or sick soldiers, not including large numbers of navy and coast guard personnel or wounded or sick prisoners of war.

The War Department reported that from Dec. 1, 1941 through August 1945, railroads handled some 293,758,000 tons of army equipment and supplies, representing about 90 per cent of all army freight moved by any form of commercial transport. In the same period the railroads moved 75,600,000 tons of navy freight.

The fall of Germany had the almost immediate effect of reversing the flow of wartime traffic moving by rail. Large quantities of freight en route to Atlantic and Gulf ports for European destinations were stopped and rerouted westward to Pacific ports. Military authorities set plans in motion to redeploy in ten months more than three million servicemen who had been assembled in Europe over a period of four years. Actually, redeployment ran ahead of schedule, and the brunt of the load fell upon the railroads.

In addition to the shift of troops and military freight to Pacific ports, large numbers of soldiers, sailors, marines and coast guardsmen were transported to their homes on furlough and to and from training and staging areas in the United States. Many thousands of Mexicans, Jamaicans and other imported laborers, as well as large numbers of prisoners of war, had to be moved. During the period between V-E and V-J days, to expedite military movements and provide equipment for troop movements, the Office of Defense Transportation, on July 15 banned the operation of Pullman sleeping cars for runs of 450 miles or less. This released about 900 sleeping cars to military use. Previously the ODT had prohibited making sleeping and parlor car reservations more than five days in advance of the departure of a train.

From V-J day to the end of the year, the volume of homeward-bound servicemen increased, reaching approximately 1,000,000 in December. At the same time, large numbers of servicemen were moved to and from training areas and ports of embarkation, so that organized troop movements in December totaled approximately 1,500,000.

Heavy snow and sleet storms around the first of the year, especially in the Great Lakes-New York area, coupled with the manpower shortage, gave the railroads one of their worst headaches of the year. Thousands of freight cars had to be literally chopped out of the ice, due to the fact that the usual supply of emergency labor necessary to keep tracks clear of snow was lacking.

Equipment.—The government's wartime ban upon the building of new standard passenger cars was lifted after V-J Day, and railroads began to place orders with manufacturers for much needed equipment. In October well above 1,000 passenger train cars were under order. Others were being built in railway shops.

Authority to build or purchase other rolling stock enabled the railroads to acquire about 750 locomotives and about 48,000 freight cars during the year. On December 1, the railroads owned a total of 42,588 locomotives of all types, compared with 41,452 at the time the United States entered the war. Railway ownership of freight cars on December 1, serviceable and unserviceable, totaled 1,765,031, as against 1,693,978 at the time this country entered the war. The number of freight cars in serviceable condition increased from 1,620,655 on Dec. 1, 1941 to 1,696,111 on Dec. 1, 1945. Passenger train cars of all types, including Pullmans, totaled 47,421 on September 1, compared with 45,557 at the beginning of the war.

Thus, with a net increase of only 3 per cent in the number of locomotives, 5 per cent in the number of freight cars, and practically no increase in the number of standard passenger cars during the war, the railroads handled increases of more than 100 per cent in freight traffic and more than 300 per cent in passenger traffic.

Revenue.—Moreover, notwithstanding substantial increases in prices and wages during the war and precipitous increases in taxes, the level of freight rates remained nearly constant throughout the war and passenger fares increased only slightly. In 1945, the average revenue per ton-mile was below that of ten years ago, and approximately the same as at the beginning of the war. Passenger fares during the war were the lowest on record. Average revenues per ton-mile and per passenger-mile compared with previous years follow, all figures being for Class I railroads:

Year	Average revenue in cents per Ton-mile	Passenger-mile
1930	1.063	2.717
1935	0.988	1.935
1939	0.973	1.839
1940	0.945	1.754
1941	0.935	1.753
1942	0.932	1.916
1943	0.933	1.882
1944	0.949	1.873
1945 (est.)	0.968	1.880

The performance of the railroads during more than 3½ years of war, with its unprecedented transportation demands, served to demonstrate their resourcefulness and their efficiency under private ownership and operation. After several years of terrific pounding without an opportunity to renew and maintain their facilities in the usual way, the railroads emerged from the war with much of their equipment badly worn and in need of replacements and with the necessity of making large expenditures to put their plant in first-class

condition to meet the transportation needs of the future.

New Equipment.—The new passenger cars ordered in the latter part of 1945 will be in service in 1946. These cars will embody desirable changes in design and materials suggested by pre-war experience with earlier streamlined cars, by experimental services of new types of sleeping cars and coaches built just before the war, and by an extensive opinion survey indicating the preferences of passengers and prospective passengers. The steam, Diesel and electric locomotives which will be placed in service in 1946 will embody many new features.

Several new types of steam locomotives were introduced during 1944 and 1945, notably Class Q–2 (4–4–6–4); Class V–1, Triplex, (4–8–4–8); the turbine-driven Class S–2 (6–8–4), of the Pennsylvania Railroad; Class M–1 (4–8–0–4–8–4), of the Chesapeake & Ohio Railroad, and the Niagara type (4–8–4) of the New York Central lines.

Finances.—The railroads continued their program, inaugurated in 1940, to reduce their funded debt. During the four preceding years 1941–44, debt reductions of Class I railroads, not in receivership or trusteeship, totaled $967,616,000, as indicated below, the second column showing the amounts by which annual interest charges were thereby reduced:

Year	Net reduction of funded debt	Reduction of interest charges of funded debt[1]
1941	$ 20,108,000	$ 5,916,000
1942	267,045,000	10,863,000
1943	400,026,000	16,066,000
1944	280,437,000	13,728,000

[1] Interest is calculated on coupon rates and takes into account the reduction in debt-reduced interest on refunded bonds.

Railway Research.—Throughout the war, the railroads continued their research in many branches of engineering and operations. Much of this research was conducted under the auspices of the Association of American Railroads. In addition, the association early in the war organized the Railroad Committee for the Study of Transportation to study probable future trends, including marketing conditions, the production and distribution of commodities, the probable future effect of water, air, and highway transportation upon railway traffic and earnings, and technological developments and improvements in every field of railway operations.

More than 100 members of the Railroad Committee have been drawn from departments and branches of the railway industry, and the detailed work is carried on chiefly by 15 subcommittees, each assigned to the study of some particular phase of transportation from the viewpoint of both technical processes and economic results.

As a result of the extensive research work which has been and is being carried on under the auspices of the Association of American Railroads and the individual railroads, innovations and improvements may be expected in locomotives, in freight cars, in passenger trains, in air conditioning and in communications, including the wider use of radio. We may also look for improvements in signals and traffic control systems, in stations, in tracks and bridges, in more efficient yards, in shop machinery and in various other aspects of railway operations.

C. J. Corliss,
Public Relations Office, Association of American Railroads.

RAMIE. See Chemurgy.

RAMSAY, Sir Bertram Home, British naval officer: b. Hampton Court, London, Eng., Jan. 20, 1883; d. in a plane crash soon after taking off from a Paris airfield, Jan. 2, 1945. Admiral Ramsay won distinction for four critically strategic accomplishments during the Second World War: he massed a fleet of small craft that rescued 385,000 troops from Dunkerque in May 1940; planned the Allied invasions of North Africa in 1942, and that of Sicily in 1943; and then commanded the greatest amphibious maneuver of all time, the Normandy beachhead invasion in 1944. He was made naval commander in chief under Gen. Dwight D. Eisenhower, the supreme allied commander, as of Dec. 29, 1943.

Admiral Ramsay entered the Royal Navy in 1898, and received his first command in 1915 in the Dover patrol. After the First World War, he accompanied Lord Jellicoe on his mission to India and the Dominions. Later he commanded H.M.S. *Weymouth, Danae,* and *Kent,* and served on the staff of the Royal Navy War College. He spent two years as chief of staff of the China station, after which he was on the staff of the Imperial Defence College. He became rear admiral and chief of staff of the Home Fleet in 1935, serving in that post until his retirement in 1938. He was recalled to duty at the outbreak of the Second World War. In April 1944, the British Navy technically returned him to "active" status, and he was promoted from vice admiral to admiral. Already a Knight Commander of the Bath for his achievement at Dunkerque, he was made a Knight of the British Empire for his services in planning and executing the naval operations in the invasion of Sicily.

RANDALL, Albert Borland, United States naval officer: b. Brookhaven, L.I., N.Y., Sept. 11, 1879; d. Bethesda, Md., Dec. 1, 1945. Commandant of the United States Maritime Service from March 31, 1943, to April 30, 1945, Rear Admiral Randall was said to be the first merchant marine officer to be commissioned a rear admiral in the Naval Reserve.

Admiral Randall went to sea as an ordinary seaman on a square-rigger at the age of 17. He remained on sailing ships until 1899, when he took jobs aboard different tramp steamers. He signed up for army transport service in the Spanish-American War in a vessel where, for the first time, he came out of the fo'c'sle and took his place as a ship's officer. Transferring to naval service in 1901, he was chief officer of the *Caesar,* when this ship assisted in towing the 500-foot drydock *Dewey* from near Baltimore to Olongapo, Philippines, a distance of some 12,000 miles. Admiral Randall received his masters license in 1905, and his first command on Jan. 17, 1907. He was made a chevalier in the French Legion of Honor for his convoy work during the First World War. Nicknamed "Rescue" Randall for his great number of rescues at sea, he served as commander of various ships, including the *Republic, George Washington, Leviathan,* and *Manhattan.* He was commodore of the United States Lines from January 1931 to October 1939, when he retired because of the age limit. Appointed rear admiral in the United States Naval Reserve in January 1942, he was recalled to active duty, and assigned to the War Shipping Administration Training Organization as commandant in March 1943. On May 10, 1945, he was relieved of all active duty.

RAPA ISLAND. See FRENCH OCEANIA.

RAPEE, Erno, American conductor and composer: b. Budapest, Hungary, June 4, 1891; d. New York City, June 26, 1945. Musical director of Radio City Music Hall, Rockefeller Center, New York, and conductor of its symphony orchestra since the opening of that theater in December 1932, Erno Rapee was one of the pioneers in bringing classical music to large audiences at motion picture theaters. In addition, he composed such popular song hits as *Charmaine, Diane,* and *Angela Mia,* for the motion pictures. Their total sales have been estimated at 5,000,000 copies.

Mr. Rapee was graduated from the Budapest Conservatory in 1909 and spent a season with the Dresden Opera before going to New York in 1912. The following year he became musical director for the Hungarian Opera Company of New York. In 1917 he joined with the late S. L. Rothafel, better known as "Roxy," and was appointed musical director of the Rialto Theater in New York. Then followed several years at the Capitol Theater, the Fox Theater in Philadelphia, and the Roxy Theater in New York. During a brief interlude he served as guest conductor of the Berlin, Vienna, and Budapest Philharmonic orchestras, and in 1925 he was employed by the UFA Film Company of Germany to present musical programs in its nation-wide chain of theaters. He also wrote many musical scores, including those for *If Winter Comes, A Connecticut Yankee, The Queen of Sheba, Robin Hood, Monte Carlo* and *Nero.* Upon his return to the United States he became musical director for Warner Brothers and First National Pictures in Hollywood. He joined the National Broadcasting Company as general musical director in 1931, conducted the General Motors Symphony Orchestra from 1935–37, and appeared as guest conductor with many American orchestras. See also under MUSIC—*Necrology.*

RECLAMATION. The Bureau of Reclamation in the Department of the Interior has had 43 years experience in regulating western rivers and conserving their waters. This agency, established under the Reclamation Law of 1902, constructs and operates irrigation, power, and other multiple-purpose projects in 17 states bordering on or west of the 97th meridian. It is the principal federal agency assigned the responsibility for water conservation in these regions.

The irrigation facilities constructed by the Bureau of Reclamation serve more than 4,000,000 acres of land in arid and semiarid regions. Repayments to the government for the costs of these works come primarily from water users on the irrigation projects and from the sale of power generated by hydroelectric plants, operated in connection with some of the dams. Power development, although incidental to the bureau's major function of irrigation, is important as a means of reimbursing the United States for the cost of reclamation construction.

Power plants on bureau projects have an installed capacity of 2,439,300 kilowatts. When all generators on existing projects and on those authorized are placed into operation, the capacity will be 5,179,300 kilowatts. In 1945 these plants produced almost 14 billion kilowatt hours of electric energy, the major portion of which was used by war industries.

Bureau of Reclamation engineers have won international renown for their work in the design and construction of giant dams. Since 1902 the bureau has constructed 179 dams, four of them the largest concrete structures in the world. They are: Grand Coulee (Washington), Shasta (California), Boulder (Arizona-Nevada), and Marshall-Ford (Texas).

In addition to dams and hydroelectric power plants, the bureau builds thousands of engineering structures including canals for the delivery of irrigation water, bridges, flumes, culverts, pumping plants, and the like.

The Bureau of Reclamation now has in operation, under construction or authorized 108 irrigation and multiple-purpose projects, including 29 initial projects in the Missouri River Basin, authorized by the Flood Control Act of 1944.

In spite of manpower and material shortages, work was advanced during the fiscal year on several of the bureau's major projects, including the multimillion-acre Central Valley development in California and the Columbia Basin Project in the State of Washington.

Even as construction is accelerated in the Central Valley Project, which conserves and uses the waters of the Sacramento and San Joaquin rivers, the bureau is preparing to build the irrigation system for the Columbia Basin Project in eastern Washington. There, Grand Coulee Dam, which made such a record as a power producer during the war, is going to be put to work for the agricultural and industrial expansion of the Pacific Northwest. The Columbia Basin Project is designed ultimately to provide Columbia River water for irrigating more than a million acres.

Another great river which the bureau is preparing to harness for the benefit of man is the Missouri. The Congress, under the Flood Control Act of 1944, approved the co-ordinated plan of the Bureau of Reclamation and the Army Corps of Engineers for more fully developing the land and water resources of the Missouri Basin.

In the initial stage of the unified plan the Congress authorized the construction by the Bureau of Reclamation of 29 units and a power transmission grid. The Congress also authorized the appropriation of $200,000,000 toward the construction of these initial units. The first 11 of the 29 authorized units are to be given priority, with a view to having the engineering and economic studies completed so that construction can be started in 1946 if the Congress makes the necessary funds available.

The Missouri Basin Plan is the first of the comprehensive river development programs designed by the Bureau of Reclamation to receive Congressional authorization. Similar studies are being prepared in 14 other river basins in the West.

The basin-wide development of the Missouri, like other multiple-purpose projects of reclamation, will provide for irrigation, hydroelectric power, flood control, municipal water, development of mineral resources, navigation, and recreational benefits through the co-operation of federal, state, and local governments.

More than a million persons live on farms and in cities and towns served by federal irrigation projects. Some 91,000 family-type farms have been created from 4,000,000 acres which were once largely unproductive. The value of 11,369,000 tons of food and forage crops produced on lands irrigated by federal reclamation projects set an all-time record in 1944 and represented substantial increases in production of many essential crops under the war food program. Another banner crop is in prospect for 1945. Farmers on bureau-irrigated lands are

major producers of sugar beets, potatoes, vegetables and fruits and also feed and forage crops essential to the livestock and dairy industry in the West. The gross value of these and other crops in 1944 was $411,226,364, which compares with a gross value of $159,885,998 in the prewar year of 1941.

More than 300 cities, towns and villages are located on or near these federal reclamation projects. Bank deposits in these cities and villages total over a half billion dollars. When the construction program now authorized is completed, the various services of the Bureau of Reclamation will be extended to regions in which live more than 10,000,000 persons.

In recognition of the need for employment and settlement opportunities for veterans and others, the bureau in 1945 presented to the Congress an inventory of 415 irrigation and multiple-purpose projects proposed for construction in 17 Western states. More than one hundred of these projects have been authorized, and construction is proceeding on some of them. As soon as funds, manpower, and material become available, this construction program can be greatly accelerated. The whole construction inventory of the bureau, if approved by the Congress, will create approximately 200,000 new farms, extending irrigation service to nearly 11,000,000 acres, and in addition, furnishing supplemental water for some 11,000,000 acres now inadequately watered.

Power plants at dams impounding water for irrigation would also provide 2,612,250 kilowatts of electric energy for industrial use, through expansion of existing bureau installations, and an additional 4,271,720 kilowatts of firm power capacity on projects under study. The Bureau of Reclamation's plans for further developments in the West would mean employment for thousands of returning servicemen and demobilized war workers and settlement opportunities for hundreds of families. Stabilization of agriculture in the West and industrial expansion in this area through the development of natural resources will help bulwark the economic structure of the whole nation. See also DAMS.

WILLIAM E. WARNE,
Assistant Commissioner, Bureau of Reclamation.

RECONSTRUCTION FINANCE CORPORATION (RFC). This corporation was established by authority of Public Act 2 of the 72d Congress, approved Jan. 22, 1932 and was organized Feb. 2, 1932, beginning operations immediately. Since then its powers have been increased and the scope of its operations extended or otherwise affected by numerous acts, public resolutions, executive orders, etc. The corporation is one of several government agencies comprising the Federal Loan Agency, under the supervision of the federal loan administrator. It is authorized to make loans for a wide variety of purposes; to subscribe for preferred stock and purchase the capital notes or debentures of banks, trust companies, insurance companies, national mortgage companies, etc.; to make loans and purchases to aid states and municipalities in financing various projects. By the act approved June 25, 1940, as amended by the act approved June 10, 1941, it was authorized to make loans and purchases, as well as engage in certain types of production, to aid the government in carrying out the defense program.

Pursuant to Public Law 109—79th Congress, effective July 1, 1945, the Rubber Reserve Company, Metals Reserve Company, Defense Plant Corporation, Defense Supplies Corporation and Disaster Loan Corporation were dissolved and all their functions, powers, duties and authority were transferred to the Reconstruction Finance Corporation. These subsidiaries, with the exception of Disaster Loan Corporation, were created for national defense purposes and have engaged in the production and acquisition of materials, supplies and equipment required for that purpose, including crude and synthetic rubber, strategic and critical materials (including minerals and metals), and the construction and expansion of plants for the manufacture of such materials. The functions of these corporations since their dissolution have been performed by the Reconstruction Finance Corporation through offices within the corporation.

War Damage Corporation was also created for national defense purposes in order to provide insurance against damage resulting from enemy attack, including any action taken by the military, naval or air forces of the United States in resisting enemy attack. Petroleum Reserves Corporation and United States Commercial Company were created under the same authority but were later transferred by executive order, and are now a part of the Foreign Economic Administration.

From the date of organization to the end of June 1945, loans and other authorizations made by the corporation aggregated $39,268,363,061.39 including $4,054,603,216.87 for allocations and loans to other governmental agencies and for relief by direction of Congress. Of the total amount authorized, $4,221,829,181.67 was canceled or withdrawn. Disbursements amounted to $33,920,383,448.18. Repayments and other reductions totaled $23,785,486,977, including cancellation of $2,784,867,007.21 of the corporation's notes pursuant to an act of Congress approved Feb. 24, 1938, leaving a balance outstanding on June 30, 1945, of $10,134,896,471.18.

Amounts disbursed from Feb. 2, 1932 to June 30, 1945 and amounts outstanding on the latter date are shown by character of loans in the table on opposite pages.

As of June 30, 1945, the Reconstruction Finance Corporation had made commitments aggregating $34,660,461,405.69. The commitments included those of its several subsidiaries, since merged into the Reconstruction Finance Corporation and now operating as offices within the corporation.

On April 2, 1945, the Reconstruction Finance Corporation was designated by the Surplus Property Board (now the Surplus Property Administration) as the disposal agency for government-owned surplus aircraft, producers' and capital goods, and war plants. Total acquisitions of salable surplus property by the Reconstruction Finance Corporation through July 31, 1945 was $911,846,000, based on reported cost figures, and it had on hand goods costing $587,926,000. As of the same date, the Reconstruction Finance Corporation had sold surplus property costing $293,986,000 at a sales price of $153,695,000. The Reconstruction Finance Corporation also had on hand as surplus property a nonsalable inventory of $1,710,592,000, consisting of aircraft unsafe or unsuited for civilian use and including 19,892 nonflyable airplanes.

	Disbursements	Outstanding
For benefit of agriculture	$ 1,452,180,464.11	$ 277,878.66
To banks and trust companies (including loans for reorganization and liquidation of closed banks)	2,195,135,339.31	14,491,747.05
For bank capital (including Export-Import Bank of Washington and Federal Home Loan Bank)	1,496,806,311.56	575,827,997.97
For self-liquidating projects (including PWA municipal securities)	617,041,915.14	28,950,461.38
To business enterprises:		
(1) total authorizations, except to aid in national defense	306,764,493.63	29,960,243.46
(2) total national defense under the act approved June 25, 1940 and under section 5d of the RFC Act, as amended, including loans and purchases of capital stock of corporations created by the RFC to aid in national defense and loans to Defense Homes Corporation	21,019,810,817.74	8,416,892,071.62
Total (1) and (2)	$21,326,575,311.37	$ 8,446,852,315.08
To drainage, levee and irrigation districts	100,949,002.18	33,262,832.43
To railroads	852,785,175.16	213,700,247.04
For purchase of railroad securities from PWA (par value and/or cost)	199,290,500.00	8,170,085.69
For loans to and capital of mortgage loan companies	780,881,255.50	91,366,973.54
For loans to and capital of insurance companies	137,843,209.81	31,763,344.78
To building and loan associations (including receivers)	140,158,067.90	32,520.51
Other	899,312,656.63	342,997,012.31
Total—by directors of the corporation	$30,198,959,208.67	$ 9,787,693,416.44
Allocations and loans to other governmental agencies and for relief by direction of Congress	3,721,424,239.51	347,203,054.74
Grand total	$33,920,383,448.18	$10,134,896,471.18

In addition to the defense corporations, now offices, mentioned in the foregoing, the Defense Homes Corporation was incorporated Oct. 23, 1940, with a capital of $10,000,000, supplied by the federal loan administrator from funds allocated by the president. The Defense Homes Corporation assisted in providing homes in areas of extensive defense building and manufacturing. Defense Homes Corporation is now a part of the Federal Public Housing Authority in the National Housing Agency, pursuant to Executive Order 9070 of Feb. 24, 1942.

The chairman of the Reconstruction Finance Corporation is Charles B. Henderson; secretary, A. T. Hobson; general counsel, John D. Goodloe; treasurer, Henry A. Mulligan. The directors are Charles B. Henderson, Sam H. Husbands, Charles T. Fisher, Jr., Henry A. Mulligan and Harvey J. Gunderson.

CHARLES B. HENDERSON,
Chairman of the Board, Reconstruction Finance Corporation.

RECONVERSION PROBLEMS. See LABOR CONDITIONS IN THE UNITED STATES; WAR PRODUCTION, U.S.

RED CROSS, American. Founded in 1881 by Clara Barton, and reincorporated in 1905, under congressional charter, the American Red Cross is obligated to "furnish volunteer aid to the sick and wounded of armies in time of war. . . . to act in matters of voluntary relief and in accord with the military and naval authorities as a medium of communication between the people of the United States and their Army and Navy . . . . and to continue and carry on a system of national and international relief in time of peace and to apply the same in mitigating the sufferings caused by pestilence, famine, fire, floods, and other great national calamities, and to devise and carry on measures for preventing the same."

In carrying out these obligations during 1945, the American Red Cross reached a higher peak of service than at any other period in its history. With an expenditure of more than $250,000,000 during the years 1941–45, American Red Cross services to the armed forces became the greatest operation of its kind in the records of the organization, conducting extensive work at home and overseas through its Military and Naval Welfare Service, Home Service, Hospital Service and Services to Veterans. At the end of the war, more than 9,400 paid Red Cross workers were serving overseas. At home there was special emphasis during the year on improved disaster relief techniques and other community services, and in the field of insular and foreign relations there was considerable expansion in various programs of relief to civilian victims of war.

Red Cross field directors, assigned to military and naval stations in the United States and overseas, helped men and women of the armed services with their personal and family problems. Through local Red Cross chapters the families of the servicemen received guidance and help. Hospital and recreation services were increased enormously, and Red Cross clubs served servicemen and women in all theaters of military operations. Services to veterans were expanded. Relief was sent to prisoners of war through the International Red Cross Committee of Geneva, and various services were provided for liberated prisoners and internees.

Authorized by law to represent veterans presenting claims before the Veterans Administration, the Red Cross gives assistance in filing applications and in assembling necessary supporting evidence. During 1945, Red Cross field directors were on duty for this purpose in all Veterans Administration offices, and claims services were also provided at camps, hospitals and separation centers. Home Service provides disabled veterans and their dependents temporary financial assistance on the basis of need, while applications for pension or other government benefits are pending, or when payments authorized are delayed or interrupted.

Between January 1941 and the end of the war, the Red Cross sent out supplies for American and other United Nations prisoners of war in Europe and the Far East valued at more than $168,000,000, including medical supplies, cigarettes, comfort articles and 27,874,000 food parcels, of which 27,000,000 were packed by volunteers in four Red Cross packaging centers. A monthly *Prisoner of War Bulletin* was sent to all next of kin and a Red Cross News Service was prepared for circulation to American prisoners of war through the International Red Cross Committee. Red Cross aid to liberated prisoners and internees included canteen service, distribution of comfort articles and clothing. and collection, forwarding and distribution of messages to and from their next of kin.

The Red Cross completed its Blood Donor Service for the armed forces on V-J Day, having collected more than 13,250,000 blood donations for the army and navy. At the peak of the program, 35 centers and more than 60 mobile units were in operation, and more than 100,000 volunteers donations were obtained weekly. After the

war, a Red Cross civilian blood donor service was announced.

In addition to this plan to assist in the programs which will meet civilian needs during the years to come, the American Red Cross distributed blood derivatives which had been prepared from blood collected for the armed forces by the American Red Cross and which were declared surplus by the army and navy. Immune serum globulin, produced as a byproduct of the navy's serum albumin program, is the most valuable agent known for the prophylaxis and modification of measles. Amounts in excess of the needs of the armed forces were returned for distribution to civilians. The American Red Cross had this material prepared for clinical use and distributes it without charge through state and territorial health departments for civilian use.

Red Cross Disaster Relief provides food, clothing, medical care, nursing service and temporary shelter during the period of emergency and when needed gives continued care and rehabilitation on a family basis following disasters. During the year ended June 30, 1945, the Red Cross gave assistance in 260 disaster relief operations in 41 states, the District of Columbia and Alaska, at an expenditure of more than $3,200,000. Serving under Red Cross direction in 70 disasters in 30 states were 1,677 nurses. Additional Red Cross nurses worked in the 1945 polio (poliomyelitis) outbreak. Aid was given to 6,683 rescued seamen and evacuees during the fiscal year ended 1945.

As a result of the war there was considerable expansion of the programs of First Aid, Water Safety and Accident Prevention Service. Water Safety Service, which had trained men of the armed forces to swim and save life under battle conditions, in 1945 inaugurated a "convalescent swimming" program. Special techniques were devised to help restore men handicapped by wounds or amputations, or suffering from battle fatigue, and similar techniques will be available for physically handicapped civilians.

During the war the Red Cross recruited nurses for the army and navy nurse corps, as well as nurse instructors to train volunteer nurse's aides for civilian and military hospitals and public health services and to teach home nursing classes. With an aim of "one person in every household with basic nursing skills," the Home Nursing program from 1941 to 1945 issued Home Nursing certificates to more than 1,400,000 persons. Nutrition Service helped promote a nationwide program for better food habits and trained volunteers for the Canteen and Dietitian's Aide Corps.

More than $148,500,000 was made available for foreign war relief by and through Insular and Foreign Operations Service of the Red Cross from Sept. 1, 1939, to June 30, 1945. It is estimated that more than 50 million people, among them 19 million children, in 46 countries, benefited directly from this program. At the request of the Allied military authorities, the Red Cross provided trained civilian war relief personnel to work with civil affairs and military government officers in providing relief to the populations of liberated areas.

Under its civilian relief program, the Red Cross provided supplies to sister societies and other agencies, and a small number of trained personnel to assist them. The principal resources used by the Red Cross in foreign relief operations were (1) funds contributed to the Red Cross by the American people; (2) garments and surgical dressings produced by chapter volunteers; (3) supplies purchased by United States government agencies from funds appropriated by Congress for foreign relief; (4) funds for special projects sponsored by the National Children's Fund of the American Junior Red Cross; and (5) resources made available by other agencies and governments for special projects. During 1945 the Volunteer Special Services had an enrollment of approximately 3,000,000 workers in the following corps; administration, 10,000; arts and skills, 4,000; canteen, 80,000; home service, 15,000; hospital and recreation, 40,000; motor, 30,000; dietitian's aide, 6,000; nurse's aide, 100,000; and production, 2,650,000. The Junior Red Cross enrolled 20,000,000 boys and girls through the schools. Among other activities, they made 10,000,000 comfort and recreation articles for the armed forces.

Headquarters of the American Red Cross is in Washington, D.C. and there are 3,754 local chapters and 5,578 branches. President Truman is ex-officio president of the organization.

HOWARD BONHAM,
Vice Chairman in charge of Public Relations, American Red Cross.

REHABILITATION. Includes all activities and procedures that contribute to the recovery of a patient from his ailment, and prepare him to resume a normal life. The armed forces operate programs designed to achieve maximum adjustment of the individual patient either for further military service or for return to civil life, with the least possible handicap from his disability, whether physiological or psychological. The procedures include such activities as occupational therapy, various types of educational endeavors, maintenance of an optimum state of general physical fitness, welfare and recreational activities, and, in addition, counseling, prevocational training, and assistance for those who will be invalided from the service. It is intended to make such use of the time a patient must, of necessity, spend in a hospital as will contribute to this purpose. Emphasis is focused on the individual's own interests with little stress on mass regimentation.

The Army Air Forces has established leadership in the field of rehabilitation which, in its ultimate success depends not simply upon medical facilities but on the intelligent handling of returned men through understanding of their problems, guidance in their readjustment and proper utilization of their abilities. In the AAF hospitals this program was initiated in 1942 and, in 1943, expanded to care not only for Zone of Interior patients but also for combat aircrews and ground personnel returning from theaters of operation. Shortly thereafter a similar program was instituted in all Army Service Forces and Navy hospitals.

Col. Howard A. Rusk, chief of the Convalescent Services Division, Office of the Air Surgeon, has been officially recognized as the originator of planned convalescence as practiced in the armed services.

It is the purpose of the convalescent hospital system supervised by the air surgeon and operated by the AAF Personnel Distribution Command to accomplish the physical and psychological rehabilitation of the sick returnee with the maximum speed and effectiveness. Similarly in the other armed forces the responsibility for providing fighting men with opportunities for useful life in the military service or the civilian com-

munity is shared by every commander of troops, inasmuch as rehabilitation begins and ends "on the job."

Col. Augustus Thorndike is in charge of the Reconditioning Division of the Office of the Surgeon General handling the overall army program. This reconditioning program is divided into three broad general phases: physical reconditioning, education reconditioning and occupational therapy. Patients are divided into four main classes. Bed-ridden patients are in Class 4, ambulatory patients are in Class 3. Those on their way to recovery who will resume active duty are in advanced reconditioning, Classes 2 and 1. Those men barred from further military service because of disability are discharged from Class 3 when they have obtained maximum hospital benefit. A program for the return to civilian life providing vocational guidance determines which fields men are best suited to enter should they so desire. (It should be noted, however, that vocational training, as distinguished from prevocational training or guidance, is the responsibility of the Veterans Administration under the law.)

All men wounded, overseas, whether members of the Air, Ground or Service Forces are placed in general hospitals operated under the Surgeon General, Maj. Gen. Norman T. Kirk. It is not until men have passed through Classes 4 and 3 as patients that air force men are separated and transferred to Air Forces Convalescent Hospitals. The Office of the Air Surgeon, Maj. Gen. David N. W. Grant, USA, has established a Convalescent Training Program designed to meet the special needs of this branch of the army.

In addition to providing for men who need no further definitive treatment in general hospitals, the AAF Convalescent Hospitals also treat returned combat personnel who are suffering from what is commonly referred to as "operational fatigue," but which, for the most part, is technically known as "anxiety reaction." These patients are restored to military duty or civilian life following physical reconditioning, psychological orientation, vocational guidance, and appropriate medical care.

Ground Forces men, upon completing definitive hospital treatment, are sent to advanced reconditioning, with stress placed on teamwork which is necessary for artillery or infantry units. Salvage of military manpower is the goal in all programs, but where disability prevents a man from donning the uniform, the program prepares him for his return to civilian life.

The Navy Bureau of Medicine and Surgery has likewise established an Office of Rehabilitation for the men of the Fleet and the Marine Corps which is directed by Capt. Howard H. Montgomery for the Surgeon General, Admiral Ross T. McIntire. The plans in all groups are managed under the same policy with the following purpose: 'To provide in hospitals reconditioning both physiological and psychological, by planned and graduated training program utilizing heretofore wasted convalescent time.

In all plans, both those of the navy and army, the original AAF procedure is followed as a basis. Designed for a dual mission the Convalescent Programs aim, first, to send the man back to duty in the best possible physical condition in the shortest period of time; secondly, to teach the patient something that will make him a more efficient and effective fighting man, or barring the possibility of returning to duty, make him more capable of adjusting himself to a home environment in which he is now a stranger.

Under this plan, physical activity and military education have become as much a doctor's prescription as drugs and diet. Muscles are not permitted to atrophy, for reconditioning exercise starts the moment acute illness or surgery is terminated. Minds do not become stagnant and time formerly wasted is spent purposefully. As a result of these methods the following results have been obtained:

(1) Hospitalization time has been shortened; (2) hospital readmissions have been reduced; (3) sick leave has been practically eliminated expect in extraordinary cases; (4) the morale of the patients has been immeasurably improved, for they have been kept interested and busy in a purposeful way; (5) personnel returning to duty or to civilian status have satisfactorily readjusted themselves from combat to noncombat environment.

NILS M. SMITH-PETERSEN,
Captain, Air Corps, Liaison Division, Office of Information Services.

REHABILITATION IN CANADA

In Canada, rehabilitation and treatment of ex-service men and ex-service women are handled by the one federal department—the Department of Veterans Affairs. There are no agencies in Canada which compare with the various state agencies in the United States.

To handle the heavy problem of rehabilitation of those injured or who suffer illnesses, Canada has embarked on the largest hospital building program in its history, with the Department of Veterans Affairs at the present time building hospitals to a total cost of approximately $35,000,000. These hospitals include active treatment centers as well as occupational and health centers where men are sent during the convalescent period.

While hospitalization of discharged veterans is the responsibility of the Department of Veterans Affairs, an advisory committee has been set up which, in addition to the Department of Veterans Affairs officials, also includes representatives of army, navy and air forces, while doctors from the three armed services co-operate with the doctors of the Department of Veterans Affairs in treatment of casualties.

The health and occupational centers are a new departure in Canada. It was felt by the directing heads of the Department of Veterans Affairs that a stage was reached in the convalescence of every ex-service man or woman where hospital atmosphere was not conducive to speedy recovery. Accordingly, plans were made for the operation of a number of health and occupational centers across Canada. Patients are sent there as soon as their recovery has reached a stage where they do not need to be under supervision of doctors and nurses. The health and occupational centers stress the importance of healthy activities in speeding convalescence. Farms are operated in conjunction with each of the centers, and the recovering veterans are encouraged to engage in the farming and gardening activities. Workshops also have been installed where the convalescent veterans can engage in activities such as carpentry, pottery, weaving, and so forth. There is little of the hospital atmosphere about these centers, with the buildings being designed bungalow style, and provision being made for a maximum of 24 veterans in each bungalow. Each bungalow also has an individual counselor who assists the veteran in planning his civilian career.

More than ever before throughout the general hospital picture of the Department of Veterans Affairs, the importance of physical medicine is being stressed. Doctors are finding that this is paying off in extra dividends, and that the convalescence period is shortened considerably as a result of the exercises which start while the veteran is still a bed patient.

The placement of veterans in employment who have a residual disability has become the responsibility of a special branch of the Department of Veterans Affairs known as the Casualty Rehabilitation Section. Officers of this section are nearly all themselves disabled men. The section is headed by Maj. Eddie Dunlop, who was totally blinded as the result of a Mills bomb explosion. Each Casualty Rehabilitation officer is a case worker. He contacts the veteran immediately on arrival in hospital and from that time on assists him in planning his civilian career. Training, in many cases, starts while the man is still a patient in the hospital. As the date of discharge approaches, the Casualty Rehabilitation officer contacts employers in the field in which the man wants to be employed. The physical requirements of the jobs are analyzed, and those selected which are suited to the man's remaining faculties. In almost all cases this system is working exceptionally well and disabled veterans, as a result of it, are being placed in employment as soon as they are ready for employment in jobs in which they can be 100 per cent efficient.

A number of special treatment centers have been set up for those casualties who come within special categories. Included are centers for paraplegics and for those veterans suffering from various types of neuroses. Neurological institutes have been opened at several centers across the Dominion, while there are three special units dealing with plastic surgery. Those blinded receive their training through the Canadian National Institute for the Blind, while the Canadian Society for the Deaf and Hard of Hearing cooperates in the training of those who lost their hearing during the war.

While there are twelve different categories of eligibility for treatment, there are three principles affecting veterans from this war. For instance, those veterans discharged from the services to the Department of Veterans Affairs in need of continuing treatment get this treatment along with the full pay and allowances which they received while they were in the services. Every ex-service man or woman is entitled to free treatment with allowances for any condition which arises in the 12 months following discharge that is not a result of their own misconduct. Pensioners receive free treatment with allowances for life for their pensioned disability, while those with service in the theater of actual war may have free treatment for life, without allowances, for any condition if they are unable to provide the treatment themselves.

Orthopedic appliances are supplied free for life to those requiring such appliances.

REORGANIZED CHURCH OF JESUS CHRIST OF LATTER DAY SAINTS. This is one of the few organizations surviving the disruption at Nauvoo, Ill., after the murder of Joseph Smith, founder, in 1844. The members do not call themselves Mormons (q.v.) as that appellation belongs specifically to and has been adopted by the Mormon Church at Salt Lake City, Utah.

Since America has been at war, missionary work has been carried on as circumstances have permitted. Church income, however, always from voluntary tithes and offerings, has reflected the country's general "defense" prosperity.

The reorganization has always opposed polygamy, has continued to contest ever-recurring claims that the founder was responsible for the introduction of either its practice or the so-called "doctrine" on which it was based by the Mormons. That and plurality of gods, and other distinctive Mormon beliefs are held by the Reorganized Church to have been innovations of Brigham Young after the breakup at Nauvoo in 1844. Confusion in the public mind as to these two churches has greatly hindered the work of proselyting.

The personnel of the leading councils of the church remains the same, except that Clyde F. Ellis, a member of the Quorum of Twelve Apostles, died June 21, 1945. These principal quorums are: First Presidency, Dr. Frederick M. Smith, I. A. Smith and L. F. P. Curry; Quorum of Twelve, Paul M. Hanson, John W. Rushton, Myron A. McConley, John F. Garver, Daniel T. Williams, F. Henry Edwards, Edmund J. Gleazer, Sr., George G. Lewis, C. George Mesley (in Australia), Arthur A. Oakman, and Charles R. Hield; Presiding Bishopric, G. Leslie DeLapp, Clarence A. Skinner and Henry F. Livingston; Presiding Patriarch, Elbert A. Smith.

To date a substantial increase is noted in income in 1945 over corresponding period in 1944, reserves having been increased, looking forward to the carrying on of domestic and foreign missionary work and charitable activities of the church. There has been a normal increase in membership by baptisms. It is expected that many ministers now in the military service will soon resume their missionary labors.

The church maintains as shrines a number of properties which were established by the church in its early years: the Kirtland Temple, Kirtland, Ohio; the original homestead and other edifices at Nauvoo, Ill. These historic places are of considerable public interest and are visited by many thousands annually.

Graceland College, Lamoni, Iowa, non-sectarian, but church established and endowed, celebrated its 50th anniversary Sept. 17, 1945.

Religious education, a regular church department, has been directed for many years by Dr. Floyd M. McDowell, of Independence, Mo., church headquarters.

Church health activities center in The Independence Sanitarium and Hospital at Independence, under the direction of Dr. A. W. Teel, of Los Angeles, Calif., and his assistant, Dr. Charles F. Grabske, of Independence.

The church continues the publication of *Saints' Herald* which was begun in January 1860, and it is issued weekly by the Herald Publishing House, Independence, where other official books and publications are printed.

FREDERICK M. SMITH,
President, Reorganized Church of Jesus Christ of Latter Day Saints.

REUNION, formerly called BOURBON. An island 420 miles east of Madagascar, a French colony (area, 970 square miles; pop., 1941, 220,955). The capital is St. Denis (pop. 32,637), and other towns are St. Paul (23,055), St. Louis (20,867), and St. Pierre (20,150). Réunion sends a senator and two deputies to the French Parliament. The colony is administered by a governor, who is assisted by a Privy Council and an elected Council-General. Schools in 1943 numbered 199 public

and 46 private, with a total enrollment of 22,900 pupils. Agricultural products are sugar cane, manioc, coffee, vanilla, and spices. Sugar and spirits are the principal exports, but in 1944 sugar production was the smallest since the turn of the century, or about 16,500 short tons, as compared with 27,294 tons in 1943. In the first half of 1944, exports totaled 13,386 tons (in the like period of 1938, 50,000 tons), and had a value of 50,402,000 francs (103,000,000 francs for the corresponding period of 1938); imports for the first six months of 1944 amounted to 8,446 tons (45,000 tons in the like period of 1938), with a value of 98,989,000 francs (132,000,000 francs in the first six months of 1938). (The rise in prices and devaluation of the franc by 13 per cent on Feb. 8, 1944, affects comparison in values.) St. Benoit and St. Pierre are connected by railroads (combined length 80 miles) with Pointe-des-Galets, the chief port.

REYNAUD, Paul, French political leader: b. Barcelonnette, Basses-Alpes, Oct. 15, 1878. Minister of Finance in the Daladier cabinet from November 1938 until March 21, 1940, when he became premier succeeding Edouard Daladier, M. Reynaud was in office when the German assault began on May 10, 1940. On June 10, he moved his government from Paris to Tours; on June 14, from Tours to Bordeaux; and on June 16, the French cause virtually lost, he resigned, to be succeeded by Marshal Pétain. On September 7, he was interned, to await trial on charges of having contributed to France's collapse. He was taken prisoner by the Germans after the Allied invasion of North Africa in November 1942. On May 5, 1945, with several other prominent French leaders, he was liberated from Itter Castle, Austria, by American troops. M. Reynaud served throughout the First World War, and received the Croix de Guerre. He is a doctor of law of the University of Paris, and author of several books.

RHODE ISLAND. New England state, United States; one of the original thirteen states. Population (1940): rural, 59,963; urban, 653,383; total, 713,346. Land area, 1,058 square miles, divided into 5 counties. Principal cities, with 1940 populations: Providence, the capital, 253,504; Pawtucket, 75,797; Woonsocket, 49,303; Cranston, 47,085; Newport, 30,532; Warwick, 28,757.

Chief State Officers, 1945.—Governor, J. Howard McGrath; lieutenant governor, John O. Pastore; secretary of state, Armand H. Coté; treasurer, Russell H. Handy; director of finance, Edward L. Leahy; attorney general, John H. Nolan.

Judiciary.—Chief justice of the Rhode Island Supreme Court, Edmund J. Flynn; associate justices, William W. Moss, Antonio A. Capotosto, Hugh B. Baker, Francis B. Condon.

Legislature.—The state's General Assembly (Senate, 44 members; House of Representatives, 100) meets annually on the first Tuesday in January.

Education.—Public elementary schools (at last report), 325; teachers, 2,115; pupils, 60,216. Public junior high schools, 34; teachers, 933; students, 20,954. Public senior high schools, 29; teachers, 963; students, 20,390. Average yearly salary of public school teachers, $1,945. Teacher training schools in the state, 4; teachers, 186; students, 3,665. Rhode Island College of Education and Rhode Island State College receive financial assistance from the state.

Finances.—Following is a summary of cash receipts and disbursements (general fund) for the fiscal year ended June 30, 1944:

Cash balance, July 1, 1943	$ 5,930,874.47
Cash receipts, 1943–44	25,313,959.72
Total	$31,244,834.19
Disbursements, 1943–44	26,812,164.80
Cash balance, June 30, 1944	$ 4,432,669.39

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	326	288	360
Potatoes (1,000 bu.)	837	1,235	1,311
Apples (1,000 bu.)	271	268	76
Grapes (tons)	210	200	100

RHODESIA. British territory in south central Africa, north of the Union of South Africa and south of the Belgian Congo, comprising Northern Rhodesia and Southern Rhodesia; both of them are colonies, the latter having a considerable degree of autonomy. In 1923 the British South Africa Company, which had brought the territory under administration during the 1880's, surrendered its sovereign rights to the British government. The combined area of the colonies is 440,656 square miles, and their populations total 3,031,116. The Central African Council, a standing body representative of the two Rhodesias and Nyasaland Protectorate (q.v.), is consultative in character, its purpose being to promote, through a permanent interterritorial secretariat, closer contact and co-operation between the three governments; at the first meeting of the council, in Salisbury on April 24, 1945, the prime minister of Southern Rhodesia declared that eventual amalgamation of the three countries was essential.

Northern Rhodesia.—The colony of Northern Rhodesia, 290,323 square miles in area, had a population in 1943 of 1,385,116, of whom 18,475 were whites; during the Second World War the colony also harbored 2,436 Polish refugees. Lusaka is the capital, and other towns include Broken Hill, Fort Jameson, Mazabuka, Abercorn, Kasama, Ndola, and Mongu. A governor (Sir Eubule John Waddington appointed May 31, 1941) is assisted by an Executive Council, of 5 officials and 4 nominated unofficials, and a Legislative Council; the latter body was reconstituted in 1944 to comprise 9 officials, 8 elected unofficials, and 5 nominated unofficials, 3 of the last representing African interests. African councils have been established in the 7 provinces, and it was announced by the Colonial Office in 1944 that "when these have had sufficient experience, an African Central Council will be set up consisting of delegates from the Provincial Councils." Northern Rhodesia is represented in the East African Governors' Conference, which maintains a permanent secretariat at Nairobi, Kenya Colony. In September 1944 a joint development adviser was appointed for the colony and Nyasaland Protectorate, his function being postwar planning. The estimated revenue in 1944 was £2,888,365, and expenditure £2,604,203. In 1944 there were 902 government and state-aided (mission) schools for natives, with 103,000 pupils; and for white children, 24 government and private schools, with a combined enrolment of 2,470. African social welfare is promoted by a welfare adviser. The

Northern Rhodesia Regiment was serving during 1944–45 in the campaign against the Japanese in Burma. White farmers are settled on more than 3,000,000 acres, their principal crops being corn (maize), wheat, and tobacco; other agricultural crops, many cultivated by natives, include citrus fruits, coffee, oil seeds, peanuts, beans, potatoes, and cassava. In 1944 exports of wheat totaled 250,000 bags (a record figure), and of corn 290,000 bags; native produce exported included 115,000 bags of corn and 35,000 bags of kaffir corn. New areas were opened up in 1944 for settlement on progressive lines by Africans. Fish farming is a new industry, waters at Chilanga, near Lusaka, being stocked with bluegill sunfish. Although some 600–700 elephants are exterminated yearly by the Game Control Department, destructive herds of elephants were on the increase in 1945, their numbers augmented by immigrants from the Belgian Congo. In 1944 the British treasury contributed £8,500 toward the cost of an organization for combatting red locusts, seasonally destructive of crops throughout central Africa. Natives possess 502,050 head of cattle; and whites, 126,500. Mineral rights remain vested in the British South Africa Company. More than 250,000 tons of copper are mined annually, principally at the Roan Antelope, Mufulira, and Nkana mines; the product of the last-named also contains silver and gold. The total value of mineral production in 1943 was £13,732,839.

The British government undertook to deliver to the United States in lend-lease in 1945, 170,000 tons of copper from Northern Rhodesia. Lead and vanadium ore are found in conjunction with the large zinc deposits at Broken Hill. Other minerals in development include bauxite, coal, and cobalt. Besides minerals, exports include timber, particularly Rhodesian redwood, and wild rubber. Exports in 1943 had a value of £13,946,080, and imports totaled £5,965,463. Motorbus services connect with the Rhodesia Railways (1,361 miles of line, main and feeder, in the colony). There is air transport connection with neighboring countries.

Southern Rhodesia.—The colony has an area of 150,333 square miles; the population was estimated in June 1944 to be 1,646,000 (African, 1,500,000; white, 82,680; Asiatic and colored, 6,970; others, 56,350). Salisbury (pop., 1941, 51,761) is the capital, and other towns include Bulawayo (39,817), Umtali, Gwelo, Gatooma, Que Que, Eiffel Flats, Mankie, Fort Victoria, Selukwe, and Shabani. The governor (Vice Admiral Sir Campbell Tait appointed Dec. 15, 1944) heads an administration responsible to an elected legislature. A Cabinet (Executive Council) comprises a prime minister (Sir Godfrey Martin Huggins reassumed office Oct. 13, 1943) and 5 ministers heading departments of the administration; Cabinet officers are selected from the majority party (the United Party) in the Legislative Assembly, the 30 members of which are elected by adult British subjects. In the native reserves are councils, of chiefs and other African leaders, which have a share in local administration and are consulted by the government respecting legislation affecting them. As is the custom in the case of the British Dominions, the status of which she has almost attained, Southern Rhodesia exchanges high commissioners with the British government; in 1944 the prime minister was invited to London to attend the conference of Dominion premiers. The financial year 1944–45 ended with an accumulated surplus of £1,973,000; revenue for that period amounted to £10,516,000, and expenditure was £10,046,000. State-aided mission schools for natives totaled 1,452 in 1942 (pupils, 112,534), and for Asiatic and colored (half-caste) children 13 (pupils, 1,817); 12,678 white children attended 92 government and state-aided schools. Tobacco production in 1944 by white farmers was 40,400,000 pounds (from 60,543 acres), and by natives 738,071 pounds (from 1,485 acres); the corn (maize) crop was 1,250,000 bags from 235,000 acres. It was estimated that 72,160 acres were under tobacco in 1945, of which 71,000 acres were farmed by whites. Fruit orchards are of considerable economic importance. In 1942 white farmers owned 2,647,154 head of cattle, 285,773 sheep, and 150,411 hogs, and large numbers were also in native ownership; the government proposed in 1945 to reduce the cattle population over a term of years in order to curb overstocking. The dairying and chilled beef industries are growing. The country has cotton ginneries, oil, soap, and candle factories, and cement and lime works. The British South Africa Company disposed of its mineral rights to the government in 1933 for £2,000,000. In 1944, 592,729 fine ounces of gold, valued at £4,978,922, were mined. Other minerals include coal, chrome ore, asbestos, silver, mica, iron pyrites, tin, and tungsten. Base metals produced in 1944 reached the record value of £3,443,539. An Industrial Development Commission, set up by the government in 1945, was authorized to expend £600,000 annually to aid industrialists to develop new or existing undertakings. Both imports and exports attained record figures in 1944, the former being £11,967,000 and the latter £15,800,000. Exports to the United States in 1943 were 12 per cent of the total, and only 7 per cent in 1944, the decrease being due mainly to fewer shipments of asbestos. Motorbus services (route mileage in 1944, 1,658 miles), operated by the Rhodesia Railways administration, connect the main and feeder railway lines in the colony (1,360 miles in 1944); the railways are linked with the systems in the Union of South Africa, the Belgian Congo and Mozambique (Portuguese East Africa). Proposals were under consideration in 1945 for acquisition of the share capital of Rhodesia Railways, Limited, by the governments of the Rhodesias and the Bechuanaland Protectorate (through which the system extends southward). Highways suitable for motor traffic exceed 12,000 miles in total length. Air transport communications within the country and externally are good.

RIBBENTROP, Joachim von, German diplomat: b. Wesel, Germany, April 30, 1893. As ambassador at large (1935), later as ambassador to Great Britain (1936–38) and Adolf Hitler's Foreign Minister (from 1938), Joachim von Ribbentrop executed the diplomatic maneuvers necessary to Nazi Germany's rise to military power in Europe. He negotiated the German-Japanese anti-Comintern pact in 1936; was one of the powers behind the Munich meeting in September 1938; and in 1939, concluded the nonaggression pact with Soviet Russia. He also mended diplomatic fences for the creation of the Rome-Berlin-Tokyo Alliance in 1940. In *Failure of a Mission* (1940), Sir Nevile Henderson states that if he "were to apportion the blame for the tragic and ghastly

(Second World) war," he would rank as next to most important "the self-interested and pernicious advice of Herr von Ribbentrop and a small clique of Nazi veterans."

Von Ribbentrop was educated at Metz. In 1910, he went to Canada as an independent wine merchant, returning to Germany at the outbreak of the First World War. At the war's end, he was attached to the war ministry, and in 1919, was a member of the German peace delegation. Von Ribbentrop became identified with the Nazis in 1930; became a party member in 1932. According to some accounts, he arranged the meeting in early January 1933 between Hitler and von Papen at which decisions of great importance to Hitler's career were made.

In January 1944, as German reverses continued to mount, von Ribbentrop's dismissal as foreign minister was reported from Switzerland. On April 30, 1945, with Germany tottering on the edge of defeat, he went from Berlin to Hamburg, and there lived in hiding until his capture on June 15 by British Army authorities. He has the dubious distinction of being on the highest priority list of Nazi war criminals.

RICE. The commercial rice crop of the United States is grown in four states—Arkansas, Louisiana, Texas, and California. In 1945, the Department of Agriculture estimated these states produced a total of 71,602,000 bushels of rice, as compared with their 1944 crop of 70,237,000 bushels, and their 1934–43 ten-year average crop of 52,346,000 bushels. In 1945 Louisiana produced 23,166,000 bushels; Texas, 17,200,000 bushels; California, 16,884,000 bushels and Arkansas, 14,352,000 bushels.

RIO DE ORO. See SPANISH COLONIAL EMPIRE.

RIO MUNI. See SPANISH COLONIAL EMPIRE.

RIVES, Amélie (PRINCESS TROUBETZKOY), American author and playwright: b. Richmond, Va., Aug. 23, 1863; d. Charlottesville, Va., June 15, 1945. Miss Amélie Rives created a literary furor with her first and most successful novel, *The Quick or the Dead?* (1888), the story of a young widow torn between her love for her dead husband and her affection for a live lover. Despite the fact that this subject was then considered taboo, the novel enjoyed a sensational success and had a sale, considered enormous in that day, of 300,000 copies. Educated by private tutors, Miss Rives lived in Mobile, Ala., until she reached the age of 21. In 1888, she married John Armstrong Chanler (later he changed his name to Chaloner), a young lawyer and member of one of New York's prominent families. She divorced him in 1895 and married Prince Pierre Troubetzkoy, a Russian artist, the next year. Among her works are *A Brother to Dragons* (1888); *Tanis* (1905); *Selené* (1905); *Firedamp* (1930); a book of poems, *As the Wind Blew* (1922); and several plays.

ROADS, Public. See HIGHWAYS.

ROCKEFELLER FOUNDATION, The. Chartered in 1913 for the permanent purpose of "promoting the well-being of mankind throughout the world," the present program of the foundation is concerned with the extension and application of knowledge in certain definite fields of the medical, natural, and social sciences, the humanities, and public health.

Medical Sciences.—In the medical sciences the foundation's interest centers mainly on research and teaching in the field of nervous and mental diseases and on the improvement of medical services. Its appropriations in 1945 for work along these lines include $282,000 to the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine, for studies of genetic factors of emotional variation and intelligence in mammals; $115,000 to the University of Illinois for research on the biochemical aspects of schizophrenia; $112,000 to the Harvard Medical School for the development of teaching and research in psychiatry; $24,000 to Columbia University for the investigation of genetic factors in the incidence of nervous and mental diseases peculiar to old age; $45,000 to Karolinska Institute, Stockholm, for research in neurophysiology; $32,000 to the American Psychiatric Association, New York City, for work of its Committee on Psychiatric Nursing; $250,000 to the Bingham Associates Fund of Maine and the Bingham Associates Fund of Massachusetts for the development of a program of postgraduate medical education in certain rural areas and towns of Massachusetts; $45,600 to Group Health Co-operative, Inc., New York City, for expenses in operating and developing medical insurance programs; and $29,000 toward the expenses of Medical Administration Service, Inc., New York City, a voluntary association of laymen and physicians providing information to industries and to government and private agencies which plan or maintain medical care.

Natural Sciences.—The program in the natural sciences is concerned mainly with experimental biology. Among the appropriations in this field in 1945 were $350,000 to Harvard University for research, in the Department of Physical Chemistry of the Medical School, on the physical chemistry of the proteins and related substances; $150,000 to the University of Iceland toward the cost of building and equipping an institute of experimental pathology; $54,900 to Harvard University for basic studies in chemotherapy; $75,000 to Karolinska Institute, Stockholm, toward the cost of equipping the Department of Biochemistry and the Department of Cell Research in the Medical Nobel Institute; $20,000 to the University of Illinois for research in the biochemistry of the amino acids; $19,000 to the California Institute of Technology for research in immunology; $15,175 to the University of Leeds for studies on analysis of biological tissues by physical techniques; $18,000 to the University of Wisconsin for research in the physical chemistry of the proteins of human blood; $125,000 to the Research Institute for Physics, Academy of Sciences, Stockholm, toward the cost of constructing a cyclotron; $50,000 to the Massachusetts Institute of Technology for the design and construction of a new high-voltage electrostatic generator for nuclear research.

Social Sciences.—In the social sciences, studies of international relations and postwar problems are receiving major emphasis. In general, aid is given to projects contributing to the understanding of important social problems and to the development of personnel and methods. Some of the 1945 appropriations were $152,000 to the Royal Institute of International Affairs, London, toward the cost of producing a history of the war and the peace settlement, and an additional $144,000 to this institute for its research program; $150,000 to the University of Chicago for the support of research in the Division of the Social Sciences; $100,000 to the Social Science Research Council, New York City, for fellowships and for reconversion and retraining of social science personnel; $60,000 to the Council on For-

eign Relations, New York City, for continuation of war and peace studies and for its general research program; $51,030 to the University of Glasgow for development of research and training in the social sciences; $40,000 to the Institute for Advanced Study, Princeton, toward the expenses of a study of the Law of International Aviation; $30,000 to Tufts College for an experimental program in the psychiatric approach to training and research in sociology; $10,000 to the University of California for study of the effects of Japanese migration and resettlement in California; and $250,000 to Columbia University toward the development of a Russian institute in its School of International Affairs.

Humanities.—The program in the humanities is concerned with studies in language and foreign cultures aiming toward better international understanding; with regional studies in the United States and Canada; and with such means as drama, radio, motion pictures, libraries, and museums, for raising cultural levels of contemporary society. Grants made during 1945 included $155,000 to the National Theatre Conference for support of activities and projects for improving educational and creative values in American universities and colleges through drama; $90,000 to the American Library Association, Chicago, for the expenses of selecting and purchasing reference books for libraries in war areas; $43,000 to the University Research Fund, São Paulo, Brazil, toward operation of its bibliographical information service; $25,000 to the American Library Association for exchanges of library personnel within North and South America; $50,000 to Stanford University for teaching and research in the areas and languages of the Pacific, Eastern Asia, and Russia; $25,000 to the American Council of the Institute of Pacific Relations, New York City, for production of English translations of source materials on Chinese history; $7,500 to Yale University and a similar sum to the Colorado School of Mines for the purchase of recording and reproducing equipment for language instruction; $16,700 to the American Council of Learned Societies, Washington, D.C., toward the cost of completing a revised and enlarged edition of Redhouse's *English and Turkish Lexicon;* $25,000 to the Rocky Mountain Radio Council, Inc., for expenses and equipment in connection with its work of preparing radio programs of educational and cultural value suited to the needs and interests of the listeners of the region; $100,000 as a special fund in the humanities for the postwar development of personnel in the United States.

Public Health.—The foundation appropriated $2,200,000 for the work of its International Health Division in 1945. This work includes research on a number of diseases, among them yellow fever, malaria, influenza, typhus fever, rabies, diphtheria, syphilis, tuberculosis, and hookworm infection; demonstrations in the control of certain of these diseases in their environments; co-operation with governments in the organization or improvement of important services of central or local health departments; and the development of public health education. In addition, the foundation made a grant of $300,000 to the University of Toronto toward the cost of a building for the School of Nursing.

Officers.—Walter W. Stewart, chairman of the board of trustees; Raymond B. Fosdick, president; Thomas B. Appleget, vice president; Norma S. Thompson, secretary; Edward Robinson, treasurer; George I. Beal, comptroller; Thomas M. Debevoise, counsel; Chauncey Belknap and Vanderbilt Webb, associate counsel. The offices of the foundation are at 49 West 49th Street, New York City 20.

H. B. VAN WESEP,
Director, Office of Publications, The Rockefeller Foundation.

RODA RODA, Alexander Friedrich Ladislaus (real surname ROSENFELD), Austrian novelist, satirist, and playwright: b. Slavonia, 1872; d. New York City, Aug. 20, 1945. After attending an Austrian military academy, Roda Roda served as a lieutenant in the Austrian cavalry, but the liberal views that he expressed in his writings eventually caused the loss of his commission. As a young man, he contributed to *Simplizissimus* and the *Jugend,* German humorous magazines, and later he was a correspondent in the Balkan wars. He served in the First World War as an officer and war correspondent, and then lived in Vienna, later moving to Munich, and finally to Berlin. Roda Roda fled from the Nazis to the United States about 1940. Among his works, many of which were popular in Europe, are: plays, *Der Feldherrnhügel* (1910; with Carl Rössler), *Bubi* (1911; with Gustav Meyrink), *Der Minister, Frühstück beim Feldmarschall* (1937), and *The Babylonian Virgin* (1944); fiction, *R.R.R.* (*Roda Rodas Roman;* 1925), *Roda Roda und die 40 Schurken* (1934), *Krokodiltränen* (1935), *Schenk ein, Roda!* (1936), *Panduren* (1936), *Polo* (1938), and *Ein Mann von mittlerer Intelligenz* (1941).

RODRIGUEZ. See MAURITIUS.

ROKOSSOVSKI, Konstantin, Soviet Army officer: b. Warsaw, 1896. Fifty-year-old Marshal of the Soviet Union Konstantin Rokossovski has been identified with some of the most decisive battles and campaigns of the Russo-German war, beginning with the defense of Smolensk in the summer of 1941. He commanded one of seven Soviet armies that defended Moscow in 1941–42. He took part in the Stalingrad battles, and shared in the Soviet victory and the subsequent capture of 22 German divisions and their commander, Field Marshal Friedrich von Paulus. (With Marshals Konev, Malinovsky, and Tolbukhin, Rokossovski is known as one of "The Four Horsemen of the German Apocalypse.") In the summer of 1943, with Sokolovsky, Konev, Popov, and the late General Vatutin, he launched the offensive on the Orel-Kursk arc. There followed the Rylsk break-through toward Kiev; the drive to the Dnieper (Dnepr) by way of Bakhmach-Chernigov and the river crossing; the capture of Rechitsa and Gomel; and finally the rout of the Germans before Bobruisk and Minsk, in the swamps and forests of Belorussia (White Russia). In the spring of 1945, Rokossovski commanded the Second White Russian Army for the final assault on Germany.

Like so many of his fellow officers, Marshal Rokossovski is a product of the revolution and the Frunze Military Academy, "cradle of Soviet generals." He received his present rank of Marshal of the Soviet Union in 1944. His military decorations include the orders of Lenin, Suvorov, (1st degree), and Kutuzov (1st degree).

ROMAN CATHOLIC CHURCH. On the last war Christmas, Pope Pius XII delivered an important message to the world on true and false democracy. True democracy, he said, implied the right of the citizen to express his views of the duties imposed on him and to be heard before being

compelled to obey. When Germany surrendered May 8, the Holy Father in a world-wide broadcast gave thanks to God and prayed for a speedy end to hostilities in Asia. He appealed to all mankind, in the name of the war dead, to strive now to build a better world, founded on the fear of God and fidelity to His commandments, and on "respect for human dignity, on the sacred principle of equality, on the rights of all peoples and all states, large and small, weak and strong." All year the activities of the Holy See were chiefly directed toward the relief of war victims. Up to August over two million persons were aided by papal relief missions to internees in Austria and Germany. The supreme pontiff received a group of United States Congressmen in May and expressed the hope that United States influence might work for a happy solution of postwar problems. He recalled his personal visit with the late President Franklin D. Roosevelt and expressed his profound regret over the death of Mr. Roosevelt. The pope spoke to the Sacred College of Cardinals June 2, calling upon clergy and laity to devote themselves to strengthening the peace and to building an effective instrument for maintaining peace. In this same address he condemned the "idolatry of racism and statism." The French Catholic philosopher, Jacques Maritain, was named ambassador to the Vatican by France early in the year, and Mr. Myron C. Taylor, who was the late President Roosevelt's personal representative to the Holy See, continued at the Vatican as the envoy of President Truman. In June Mr. Taylor was awarded the Grand Cross of the Order of Malta by Pope Pius XII. The same honor had been conferred on Field Marshal Sir Harold Alexander, Allied Commander of the Mediterranean Forces. The chief rabbi of Rome, Dr. Israel Zolli, deeply impressed by the attitude of the pope during the war, became a Catholic; he and his wife were baptized in the Church of St. Mary of the Angels in Rome.

The church in most of the war-torn countries suffered grievous hardships. In June it was reported that, during the rocket-bomb attacks on England, 55 Catholic churches in London were destroyed or badly damaged. The number of presbyteries, schools and convents destroyed was considerably greater. In May, His Eminence August Cardinal Hlond, primate of Poland, revealed that three bishops and more than 2,000 priests in that country had met with violent deaths. In the Netherlands, the Catholic University, with its priceless library at Nijmegen, was burned by the Nazis. After the German surrender, His Eminence Michael Cardinal von Faulhaber, archbishop of Munich, who had remained at his see throughout the war, told the Allies that many of his priests had died in prison or had been deported by the Nazis. It was reported in August that during the war 149 prelates, priests, religious and seminarians of Prague, Czechoslovakia, were in German prison camps and that 22 of them had died there. In Manila, during the April campaign, 71 priests and religious were murdered by the Japanese. Later it was estimated that damage to church property in the Philippines, which included the Cathedral of Manila, would reach $150,000,000. Documents released in March proved that, during the German occupation of France, the bishops of that country had made repeated protests to Marshal Petain against the persecution of the Jews.

In the United States the War Relief Services of the National Catholic Welfare Conference (N.C.W.C.), established more than 150 welfare centers in 44 countries, which aided millions of victims of the war. Up to September there were 3,076 Catholic priests serving as chaplains with the United States armed forces; in addition, there were 1,639 auxiliary chaplains. Fifty-seven army, 10 navy and 15 auxiliary chaplains died during the war. In August, Omaha, Nebr., which had been a diocese since 1885, was made an archdiocese and its bishop, the Most Reverend James H. Ryan, was elevated to the rank of archbishop. The Most Reverend Joseph P. Donahue was consecrated titular bishop of Emmaus and auxiliary bishop of New York, March 19, and on May 1 the Most Reverend John K. Mussio was consecrated the first bishop of Steubenville, Ohio, which was made a diocese last year. On the same day, the Most Reverend Edward J. Hunkeler was consecrated bishop of Grand Island, Nebr. The Most Reverend Vincent S. Waters was consecrated bishop of Raleigh, N.C., May 15, and on May 24, two bishops were consecrated in the Cathedral of St. Paul, Minn., the Most Reverend Francis J. Schenk for the diocese of Crookston, Minn., and the Most Reverend James L. Connolly as coadjutor to Bishop Cassidy of Fall River, Mass. The Most Reverend Louis F. Kelleher was consecrated titular bishop of Thenae and auxiliary bishop of Boston, Mass., June 8 and the Most Reverend Apollinaris W. Baumgartner, O.F.M. Cap., was consecrated titular bishop of Joppe and vicar apostolic of Guam, September 18. The Rt. Rev. Msgr. John P. Treacy of Cleveland, Ohio, was consecrated October 2 titular bishop of Metelis and coadjutor to the bishop of La Crosse, Wis., and the Rt. Rev. Msgr. William A. Scully of New York was consecrated October 24 as titular bishop of Pharsalus and coadjutor to the bishop of Albany, N.Y. Two other bishops were appointed to dioceses, the Most Reverend John F. O'Hara, C.S.C., titular bishop of Mylasa and military delegate, was installed as bishop of Buffalo, N.Y., May 8, and the Rt. Rev. Msgr. William R. Arnold, formerly chief of chaplains of the U.S. Army, was consecrated October 11, titular bishop of Phocara, to replace Bishop O'Hara as military delegate; the Most Reverend Henry O'Brien, who was the auxiliary bishop of Hartford, Conn., became bishop of that diocese in June. The Laetare Medal was conferred on Gardiner Howland Shaw, former United States assistant secretary of state, for outstanding work in the field of diplomacy and social welfare.

During the year, three bishops died in United States territory: in May, the Most Reverend Joseph R. Crimont, S.J., vicar apostolic of Alaska since 1917; in September, the Most Reverend Daniel F. Desmond, bishop of Alexandria, La.; and in November, the Most Reverend Joseph G. Pinten, retired bishop of Superior, Wis. In addition, the Most Reverend James McCloskey, bishop of Jaro, died in the Philippines, April 9. In September the Rt. Rev. Msgr. John A. Ryan, director of the Social Action Department of the N.C.W.C., died in his 76th year. Earlier in the year, February 13, death took Mother Grace Dammann, president of Manhattanville College, N.Y. On August 25 Thomas F. Woodlock, former member of the Interstate Commerce Commission, died. In Europe, death took two cardinals: His Eminence Justinian Cardinal Seredi, primate of Hungary, March 29, and His Eminence Adolf Cardinal Bertram, archbishop of Breslau, in July, reducing the College of Cardinals to 39.

Missionary work among the colored and In-

dian populations of the United States made great progress. The number of colored Catholics is about 330,000, an increase of 17,000 over 1944; there are nearly 100,000 Catholic Indians, an increase of 6,000 over the previous year. According to the *Official Catholic Directory*, published in June, Catholics in the United States, Alaska and the Hawaiian Islands now number 23,963,671; an increase of 543,970 over 1944. The number of ordained priests is the highest on record: 38,451.

REV. JOSEPH I. MALLOY,
Assistant Editor, The Catholic World.

ROOSEVELT, Franklin Delano, 31st president of the United States: b. Hyde Park, N.Y., Jan. 30, 1882; d. Warm Springs, Ga., April 12, 1945. Perhaps no president in the history of the country was more completely idolized by his followers and more thoroughly disliked by his enemies than was Mr. Roosevelt, whose spectacular career ended suddenly as he was about to witness the realization of his most cherished desire—the utter defeat in war of the Axis Powers. As he passed away, the Allied armies, whose activities he had helped so much to spark, were hammering at the gates of Berlin. Less than a month later Germany quit, and four months later Japan was through.

A maker and breaker of precedents, Mr. Roosevelt was the only person ever to be elected president of the United States for more than two terms; he was elected four times—in 1932, 1936, 1940, and in 1944—and served a total of 12 years, 1 month, and 8 days. It is entirely too early to attempt to fix his place in history. Much that he did was of such a highly controversial nature that even now it cannot be evaluated. Furthermore, it is practically impossible to obtain an unbiased opinion of either Mr. Roosevelt or his work. Aside from his war activities, which met with more or less general approval, about everything he did was praised by his followers and damned by his enemies. Generally speaking, business and industry disliked and distrusted him; on the other hand, labor, the racial minorities and the underprivileged all but worshipped him.

A consummate, or as some called him, a "super" politician, there were those who professed to see a political motive in everything he did—in his handling of labor; in his attitude toward minority racial groups; and in his denunciations of the moneyed classes as "economic royalists," to which latter group he himself definitely belonged, though his own fortune was inherited. His admirers, however, saw him as a great humanitarian, whose consuming ambition was to uplift the downtrodden whether black or white, Jew or Gentile, farmer or factory hand. His must have been a very complex nature to have aroused such conflicting and contradictory emotions. When he passed away there were practically but two elements among the people of the United States—the Rooseveltians and the anti-Rooseveltians; there were almost no neutrals.

In many foreign countries, however, Mr. Roosevelt was greatly admired and abroad was perhaps the most popular president the United States ever had. But here again, his enemies attributed his foreign popularity, not to any liking for the man himself, but to what the foreigners hoped to get out of him, or out of the United States by way of lend-lease or otherwise.

Nevertheless, Mr. Roosevelt's sudden death came as a distinct shock to the entire country. Only a short while before, the public had been told that his health was good even though it was perfectly apparent to all who saw him or saw pictures of him that the strain of his office was rapidly wearing him down. His face looked drawn and haggard and he appeared to be extremely tired. However, he was signing official papers and sitting for the painting of his portrait when he suddenly fainted. Two hours and 25 minutes later he was dead. Death was attributed to a "massive cerebral hemorrhage."

There was a decided dash of the daring in Mr. Roosevelt. He had ideas and was never afraid to try them out. His experiments perhaps were not always as successful as he hoped they would be, but, if so, he maintained his own council and kept on trying. His fundamental weakness was a lack of administrative ability. He had a habit of piling one administrative unit on top of another in a way that must have been as confusing to the various organizations as it was to the public. As Gerald Johnson said of him (*Look*, July 10, 1945): "He was slow to delegate authority, still slower to remove incompetent officials if he liked them personally. Disliking quarrels, he sometimes allowed people to think he agreed with them when he did not, and so was accused of duplicity. Then there was a spice of the vindictive in his make-up. That also made enemies."

Mr. Roosevelt was the son of the late James and Sara Delano Roosevelt, and a fifth cousin of the late President Theodore Roosevelt. The Roosevelt family is of Dutch origin, being descended from Klaes Martensen van Roosevelt, who came to America from Holland about the middle of the 17th century, and settled in what was then New Amsterdam. The Delanos are of Flemish origin. Philippe, the founder of the American branch of the family, came to America in 1624. Mr. Roosevelt's mother was his first teacher. Later he was taught by governesses and tutors. Each summer he traveled with his parents in Europe and at the age of 14 he was sent to Groton, the famous preparatory school at Groton, Mass. In 1900 he entered Harvard University from which he was graduated in 1904. Thereafter he studied law at Columbia University Law School, and in 1907 was admitted to the New York bar. From that year until 1910 he was associated with the firm of Carter, Ledyard, and Milburn. Later he was associated with others in the practice of the law, and from 1924 until 1933 was a member of the firm of Roosevelt and O'Connor.

Mr. Roosevelt's political career began in 1910 when, after having been a delegate to the state Democratic Convention of New York, he was persuaded to accept nomination for the state Senate in the district composed of Dutchess, Putnam, and Columbia counties. The district was regarded as overwhelmingly Republican, but one Democrat having been elected to the state Senate therefrom since the Civil War. Nevertheless Mr. Roosevelt won out in the general election. Shortly after he took his seat in the upper house of the state legislature in January 1911, he became the leader of an insurgent group that, in defiance of Tammany, lined up in opposition to the candidacy of William F. (Blue-Eyed Billy) Sheehan for the United States Senate to succeed Chauncey M. Depew. At that time members of the national Senate were still elected by the state legislatures. After 63 ballots, the Roosevelt following forced the election of James A. O'Gorman as a compromise candidate. This show of independence on the part of Mr. Roosevelt was followed by another in 1912 when, again in opposi-

tion to Tammany, which was supporting Judson Harmon of Ohio, he led the fight in the New York delegation to the Democratic National Convention at Baltimore for the nomination of Woodrow Wilson for president. These displays of opposition to boss rule greatly increased the popularity of the young state senator, and he was re-elected in the fall of 1912. However, shortly after Mr. Wilson's inauguration, Mr. Roosevelt accepted appointment as assistant secretary of the navy in which position he served until 1920. In 1914 he sought but failed to obtain the Democratic nomination for United States senator, and in 1918 he rejected Tammany's plea that he run for governor. In 1920 Mr. Roosevelt was sent as a delegate to the Democratic National Convention at San Francisco. There he made a notable speech seconding the nomination of Governor Alfred E. Smith of New York for the presidency. Mr. Smith lost out, but Mr. Roosevelt's speech is believed to have had much to do with his own nomination for vice president on the ticket headed by James M. Cox of Ohio. During the campaign Mr. Roosevelt made hundreds of speeches in two transcontinental trips, advocating adherence to the League of Nations. His ticket was defeated but the contacts he made aided him materially in his own campaign for the presidency 12 years later.

In 1921, when he was 39 years old and apparently in perfect health, Mr. Roosevelt was suddenly stricken with infantile paralysis. His subsequent fight to regain his health elicited the admiration of the entire country. His recovery was augmented by the healing waters of Warm Springs, Ga., and through his influence this previously little known resort became the center of treatment for victims of poliomyelitis in the United States. At the time it was generally believed that Mr. Roosevelt's affliction had permanently removed him from the field of political activity. However, he kept in close touch with public affairs, and in 1924 was well enough to attend the Democratic National Convention, held in Old Madison Square Garden, New York City. Here he made the most notable speech of the convention in nominating Governor Alfred E. Smith for the presidency. Four years later, at Houston, Texas, Mr. Roosevelt again placed Mr. Smith in nomination, and this time the New York governor was nominated on the first ballot.

Needing all the support he could get to carry New York State, Governor Smith prevailed upon Mr. Roosevelt to accept the Democratic nomination for governor. Mr. Smith lost New York but Mr. Roosevelt won out by a plurality of 25,564 votes, and two years later was re-nominated and re-elected by the then unprecedented plurality of 725,001 votes. Throughout his four years as governor of New York, Mr. Roosevelt had to contend, as did Governor Smith, with a more or less hostile legislature. His policies, in part, were a continuation of those of Mr. Smith, but he struck into new ground with his program for old age pensions, transfer of the budget-making power from the legislature to the executive, creation of a New York State Power Authority, farm relief, reforestation of submarginal lands, state unemployment relief system, etc.

While Mr. Roosevelt was busy with state affairs, James A. Farley and the late Col. Louis McHenry Howe were busy promoting the presidential candidacy of the New York executive. So well did they play their cards that by the time the Democratic National Convention met in Chicago in 1932, Mr. Roosevelt was the choice of the majority of the delegates for the nomination. However, he was unable to command the necessary two thirds until an agreement had been reached whereby John N. Garner of Texas was to have second place on the ticket in exchange for the release of his Texas and California delegates to Mr. Roosevelt. The latter was then nominated on the fourth ballot, receiving 945 votes out of the total of 1,154 in the convention.

Campaigning on what came to be known as the New Deal platform, Mr. Roosevelt visited practically every section of the country, and in the general election he and Mr. Garner won out over President Herbert Hoover and his running mate by a plurality of 7,060,016 popular votes. They carried 42 of the 48 states, giving them 472 votes out of 531 in the Electoral College. This unprecedented victory was due in large measure to the economic condition of the country, then in the throes of the worst economic depression on record, but it was also due in part to Mr. Roosevelt's extremely pleasing personality. Four years later Mr. Roosevelt and Mr. Garner were renominated and re-elected over Governor Alfred M. Landon of Kansas by a popular plurality of 10,797,090. In that year they carried every state in the Union with the exception of Maine and Vermont, and received 523 votes (all but 8) in the Electoral College. That was Mr. Roosevelt's high-water mark. In 1940, when Henry A. Wallace was his running mate, his popular plurality dropped to 4,938,711 votes, and his Electoral College vote dropped to 449 against 82 for the late Wendell L. Willkie, his Republican opponent. In 1944 he fared even worse. With Governor Thomas E. Dewey of New York as his Republican opponent, his popular plurality dropped to 3,596,227 votes. In the Electoral College he polled 432 votes to 99 for Mr. Dewey. Undoubtedly some of this drop in votes was due to opposition to a third and fourth term, but there were other contributing factors not the least of which was a growing dislike of many of Mr. Roosevelt's policies.

On Feb. 15, 1933, prior to his first inauguration, an attempt to assassinate Mr. Roosevelt was made at Miami, Fla., just after he had finished delivering a speech in Bay Front Park in that city. Five shots were fired at him by Guiseppe Zangara, and though he escaped injury, five persons standing near the automobile from which he had spoken were wounded. One of these was Mayor Anton J. Cermak, of Chicago, who died in a Miami hospital March 6. Zangara was arrested immediately after the shooting and later, after trial, was executed.

Beset first by the depression and then by war, Mr. Roosevelt's administration was hectic from beginning to end. At the time he was first inaugurated, March 4, 1933, the country was shrouded in economic gloom. Banks in 38 states were closed and there were approximately 12,000,000 unemployed persons in the country. Taking as the theme of his inaugural address "the only thing we have to fear is fear itself," the new president promptly set to work to better conditions. Though he had preached economy in his campaign speeches, he tried to dissipate the depression by the spending of huge sums of money. He never quite succeeded, for when the Second World War came and changed everything there were still many people out of employment or working on relief projects.

Within 24 hours after he entered office, Mr. Roosevelt declared a four-day bank holiday, and

called Congress to meet in extraordinary session on March 9. Thirty minutes after it met he laid before it a message asking for ratification of his bank proclamation and for the grant of extraordinary powers to cope with the conditions. By 8 o'clock that night a bill giving him everything he asked was on his desk for his signature. He then asked Congress to authorize a reduction in pensions and in the pay of government employees. Such a bill became a law on March 15. Two days earlier he had asked Congress to legalize the manufacture and sale of beer, and by March 22 the bill had been passed and signed. On April 19 the president placed an embargo on the export of gold, thereby taking the country off the international gold standard. Under various acts, passed at the president's behest, he set up a total of 30 emergency agencies during the next few months. These included the Agricultural Adjustment Administration (AAA), the Commodity Credit Corporation, the Electric Home and Farm Authority, the Export-Import Bank of Washington, the Farm Credit Administration, the Federal Civil Works Administration, the Federal Deposit Insurance Corporation, the Federal Emergency Administration of Public Works, the Federal Subsistence Homestead Corporation, the National Emergency Council, the National Labor Board, the Tennessee Valley Authority (TVA), and the National Recovery Administration (NRA). Some of the agencies created by Mr. Roosevelt have since been liquidated; some have been consolidated with other organizations; and some, notably the NRA and the original AAA have been declared unconstitutional by the Supreme Court. It was these decisions of the Supreme Court that led Mr. Roosevelt into one of the worst political blunders of his career—the attempt to increase the membership of the court from 9 to 15. Called the "court packing scheme," the controversy that raged over the proposal was bitter in the extreme. Congress turned it down, but the attempt plagued Mr. Roosevelt for a long, long time. He made another blunder when he attempted to purge Congress of some of his nonsupporters therein at the 1938 elections. He succeeded in defeating only one of his intended victims, but even those who were elected never forgave him.

But before these troubles overtook him, Mr. Roosevelt had gone ahead with his plans for overcoming the depression. Early in January 1934, Congress passed the Gold Reserve Act under which he, on Jan. 31, 1934, proclaimed the weight of the gold dollar to be $15\frac{5}{21}$ grains, $\frac{9}{10}$ fine, or 59.06 per cent of the old gold dollar. This act transferred title to all gold in the Federal Reserve banks, the entire stock of monetary gold in the country, to the government, and the president fixed the price of newly mined gold at $35 an ounce. Previously Mr. Roosevelt had done much to promote the adoption of the 21st Amendment to the Constitution repealing the 18th or Prohibition Amendment. The repealer amendment was adopted by the necessary 36 states on Dec. 7, 1934, and prohibition became a thing of the past.

Though Mr. Roosevelt had more important legislation enacted and spent more money than any president in the history of the country, it is altogether probable that his fame will rest on his war record. Some of his enemies have insisted that by his policies he was responsible for involving the United States in the Second World War. A contrary opinion gave him credit for foreseeing the danger to the country, the almost certainty that in the event the Axis powers were victorious, the United States would have to fight them alone; that with Hitler in control of Europe the United States would have to trade with him on his terms, even if it did not have to fight him, and that America's foreign trade would be just what Hitler wanted it to be.

Whatever his motives, Mr. Roosevelt early began to prepare for trouble. He succeeded in having Congress pass the first draft bill, as a result of which approximately 1,000,000 men had had a certain amount of military training when at last Japan forced the war on the country. Furthermore, he had laid plans for strengthening the navy and air force, and the work was under way. Again Mr. Roosevelt deserves full credit for having picked able men in Gen. George C. Marshall and Admiral Ernest J. King to head the fighting forces and thereafter giving them their way. He is also given credit for having decided to fight Germany first and then go after Japan, and also for having decided that Africa should first be cleared of hostile troops before the invasion of Europe.

Again Mr. Roosevelt's friends give him credit for holding the Allies together. Certainly he worked unceasingly to do so, and it is a historical fact that no grand alliance half as big ever hung together half as long under even half as much pressure. Undoubtedly Hitler never believed that the alliance would hold up, and did everything he could to disrupt it, but to no avail. Even if it did get tottery after the fighting ended, it held together until the last gun was fired. In his efforts to promote Allied unity, Mr. Roosevelt made no less than three trips across the Atlantic —to Casablanca in January 1943; to Cairo and Teheran in November 1943; and to Yalta in February 1945. In addition, the president held numerous conferences with Prime Minister Winston Churchill, the most noteworthy of which perhaps was the one held in the North Atlantic in August 1941 when the Atlantic Charter was adopted. Three others took place in Washington—one in December 1941, a second in June 1942, and a third in May 1943. No other president traveled so much or, considering his physical condition, risked half so much as did Mr. Roosevelt. Undoubtedly the strenuous life he led hastened his end, but it is equally certain that he realized the fact and refused to surrender so long as he felt there was work to be done.

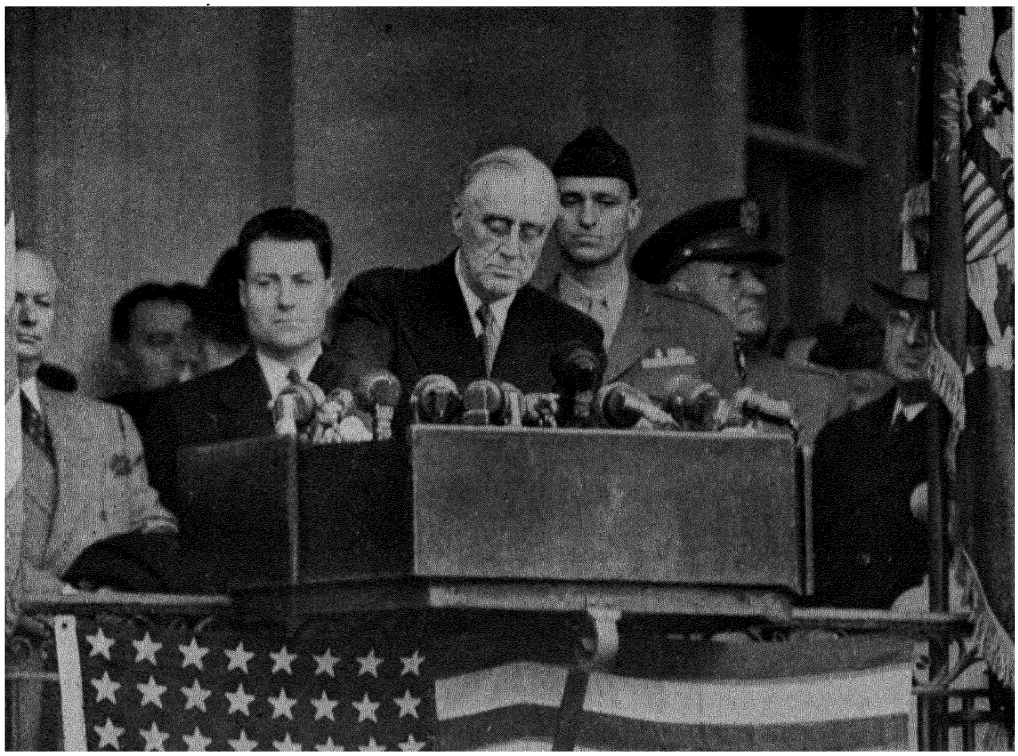
On March 17, 1905, while he was still a student at Columbia University Law School, Mr. Roosevelt married Miss Anna Eleanor Roosevelt, a distant cousin and the favorite niece of President Theodore Roosevelt. She and five children, four sons and a daughter, survive him.

Mr. Roosevelt was buried on the lawn of his Hyde Park home where a simple monument marks his last resting place. Nearby stands the Franklin D. Roosevelt Library, which houses his state papers, and his collections of naval prints, ship models, stamps, family papers and related materials presented by others, and which is administered by the Archivist of the United States. In time, Hyde Park itself, in accordance with Mr. Roosevelt's wishes, will become the property of the federal government—a shrine which already thousands visit annually.

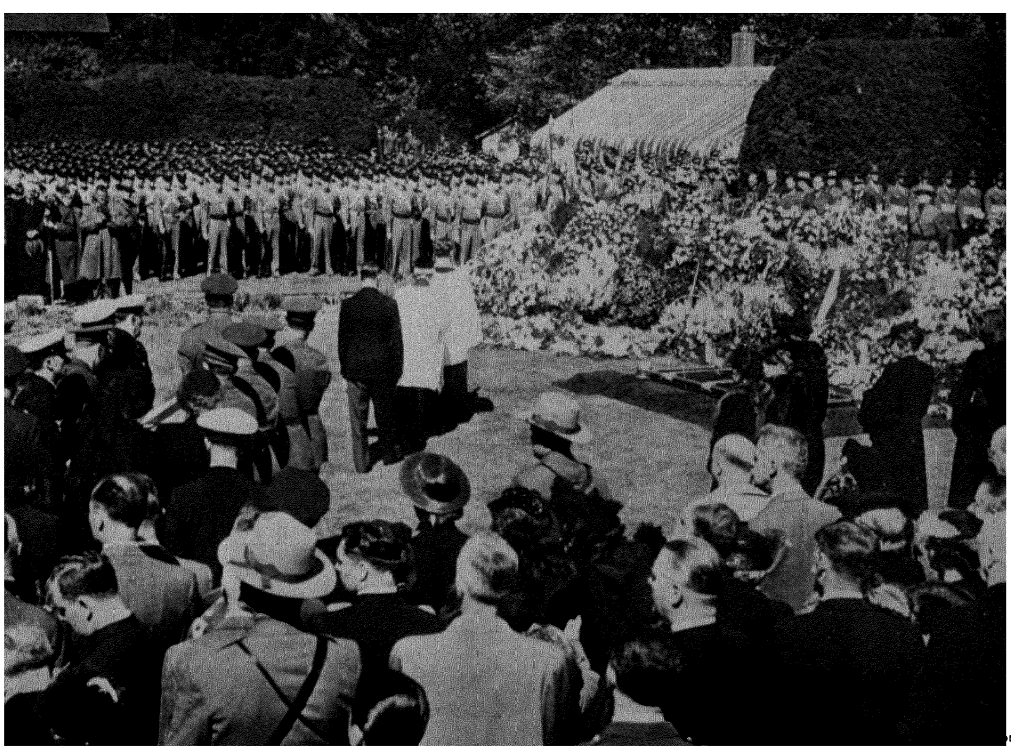
A. H. McDANNALD.

RORKE, Kate (MRS. DOUGLAS CREE), English actress: b. London, 1864?; d. Hertfordshire, England, July 31, 1945. One of England's greatest actresses, Kate Rorke made two tours of the United States—in 1883–84 with Charles Wynd-

ROOSEVELT, FRANKLIN DELANO



From the south portico of the White House, Washington, D.C., President Roosevelt delivers his fourth term inaugural address, Jan. 20, 1945. His son, Col. James Roosevelt, USMCR, looks on.



n, Inc.

Franklin Delano Roosevelt's body is carried to its last resting place in the rose garden of his home at Hyde Park, New York. Directly behind the casket are, left to right: Brig. Gen. Elliott Roosevelt, Mrs. Roosevelt, and Mrs. Anna Boettiger.

ham, and 10 years later as a member of Beerbohm Tree's Company. Educated at the Convent of Notre Dame in Southwark, Miss Rorke made her first stage appearance as a child in 1878 in *Olivia,* under the management of John Hare. She was engaged by Charles Wyndham two years later, with a leading part as Grace Peyton in *Betsy,* and continued as a member of this company for several years. Later she was engaged again by John Hare and through this connection became the leading lady at the Garrick Theater in London for a period of six years. Her first Shakespearean role was Helena in *Midsummer Night's Dream* in 1889. On her second visit to the United States, she presented several of her greatest characterizations, which included Ophelia in *Hamlet;* Drusilla Ives in *The Dancing Girl;* Olga Morakoff in *The Red Lamp;* Lady Percy in *Henry IV* (Part I); in *Trilby;* and as Alice Duvarney in *The Seats of the Mighty.* Returning to England, she appeared at the opening of Her Majesty's Theater in April 1897 and repeated many of her earlier successes at the Drury Lane, at Terry's, the Metropole, and the Adelphi before accepting the title role in George Bernard Shaw's *Candida* in April 1904. In 1906 she was appointed professor of dramatic art at the Guildhall School of Music. After a revival of *A Pair of Spectacles* in 1917, Miss Rorke retired from the stage and devoted more than 20 years to the training of young actresses at her studio in London.

ROSE, Maurice, United States Army officer: b. Middletown, Conn., Nov. 26, 1899; d. near Paderborn, Germany, March 30, 1945, after having been captured by German soldiers whose orders he could not understand, and who shot him as he was reaching to give up his gun. As commanding officer of the 3d Armored Division since the Normandy break-through in 1944, Major General Rose had distinguished himself repeatedly during the First Army's drive through France, Belgium and Germany.

General Rose received his first military experience as a private in a cavalry troop of the Colorado National Guard in 1916. He served as a lieutenant with the American Expeditionary Force in the First World War, and received the Purple Heart and the Silver Star. After the armistice, he joined the Regular Army, and was commissioned captain in 1920, major in 1930, and lieutenant colonel in 1940. Named chief of staff of the 2d Armored Division in January 1942, he went overseas in December of that year, and fought in the North African campaign. He remained with the 2d Armored Division until June 1943, when he was promoted brigadier general. On Sept. 15, 1944, he was promoted to the temporary rank of major general. His troops were responsible for the capture of Liége in September 1944. General Rose received the Distinguished Service Medal shortly before his death.

ROTACHUTE. See AERONAUTICS, Section 10.

ROTARY INTERNATIONAL AND ROTARY CLUBS. Rotary International is the world-wide organization of all Rotary Clubs. It is responsible for the administrative supervision of its member clubs and for the propagation of the objects of Rotary throughout the world. A Rotary Club is a group of representative business and professional executives who meet together in fellowship to further the "Ideal of Service," which is thoughtfulness of and helpfulness to others in business and community life.

Since the first Rotary Club was organized in Chicago, Ill., in 1905, Rotary has spread throughout the world. One indication of the strength of the Rotary organization is that during the last five years Rotary Clubs have been organized throughout the world at the rate of nearly four new clubs each week. There are now (Jan. 7, 1946) 5,620 Rotary Clubs in 60 countries with a membership of 256,925.

For 1945–46 (fiscal year ending June 30, 1946) the general officers of Rotary International are: president, T. A. Warren, Wolverhampton, England; vice-presidents, Herbert J. Taylor, Chicago, Ill.; Chengting T. Wang, Chungking, China; Carlos Hoerning, Santiago, Chile; secretary, Philip Lovejoy, Chicago, Ill.; and ten directors from Canada, Portugal, Sweden, the United States, Venezuela, and Wales.

During 1945, Rotary activities included general community-betterment undertakings, work for crippled and underprivileged children, the establishment and supervision of camps and clubs for boys and girls, assistance to students through student loan funds and scholarships, the promotion of high standards in businesses and professions, and the development of international good will and understanding.

In the United States and Canada some 400 "Institutes of International Understanding" were sponsored by Rotary Clubs, presenting to community forums and to high school audiences outstanding speakers on vital world problems.

Attendance at the 36th annual convention of Rotary International, which was held in Chicago, Ill., was limited to 141 key executives. In accordance with United States government directives, the convention was held in four separate meetings, a week apart, on May 31, June 5, June 12, and June 19, 1945.

Rotary International headquarters office at 35 East Wacker Drive, Chicago, Ill., U.S.A., serves as a clearing house for the dissemination of Rotary information. Additional offices for serving Rotary Clubs are located in Zurich, Switzerland; Bombay, India; and London, England.

The official magazine of Rotary International is *The Rotarian,* which has a Spanish edition, *Revista Rotaria.* In addition, there are numerous regional Rotary magazine publications throughout the world in several different languages.

PHILIP LOVEJOY,
General Secretary, Rotary International.

ROTARY WING AIRCRAFT. See AERONAUTICS.

ROYAL, Forrest B., United States naval officer: b. New York, 1893?; d. in the Pacific theater of war, of natural causes, June 18, 1945. A week before his death, Rear Admiral Royal was in command of the amphibious operations in the Brunei Bay area on the northwest coast of Borneo. Admiral Royal was graduated from the United States Naval Academy in 1915. He was promoted from captain to rear admiral in 1944, and received the Distinguished Service Medal for his performances as commander of an amphibious task group operating against Leyte and Luzon in the Philippines from July 1944 to January 1945. Admiral Royal was in command of the 7th Amphibious Force, which put ashore Australian and Netherlands troops at Tarakan Island in Borneo on May 1, 1945, the first Allied invasion of the Netherlands Indies.

RUBBER. The rubber manufacturing industry was in a constant state of chaos for the major portion of 1945. Although production of syn-

thetic rubber—the industry's main raw material —was more than sufficient to meet both military and essential civilian needs, component shortages cropped up throughout the year, particularly on carbon black and rayon tire cord, with the result that the manufacturing regulations and limitations were revised from month to month. Throughout the year manpower was the primary difficulty.

The military tire crisis carried over from 1944. Early in 1945 the military tire program was declared an "emergency" by the army and specific measures were taken to increase production of heavy-duty tires. These included institution of a seven-day work week for an approximate 120-day period; a moratorium on labor-management differences over wage changes and job classifications; top manpower priorities; furloughing of some 1,200 former tire workers from the army to return to tire plants; reactivation of special army manpower recruiting teams for the tire industry; use of new tire facilities which were approaching completion, and the launching of a study designed to transfer workers from passenger car production to the manufacture of military tires.

Late in 1944 a "within walls" expansion program was approved by the War Production Board, under which additional production facilities were to be installed in existing plants. Based on increased demand for military tires as a result of the "Battle of the Bulge" fought in Belgium, the War Production Board authorized an additional expansion program to include the construction of new plants and expansion of existing plants to furnish an additional 6,000,000 heavy-duty tires per year, or 25 per cent more than existing capacity. This latter program was expected to cost approximately $70,000,000, and when completed total over-all capacity of heavy-duty tires was expected to reach 28,000,000 units per year, as compared with the 14,000,000 units produced in 1944.

In all, some 75 government projects were authorized, including tires, tubes and bogie wheels, between January and March, all of which were cut back in July and August, the major portion of them before the collapse of the Japanese war effort. Total expenditure for all of these expansions had been estimated at $132,000,000. At the time of cancellation, only a handful of the new plants had been completed and were in partial operation. Approximately 10 plants were retained as part of the government tire program and were completed and placed in operation.

Stepped up production of military tires in the January-March period soon resulted in serious shortages of component materials. The shortage was especially evident in the supply of carbon black, and new plant expansions for the manufacture of both channel and furnace blacks were authorized by WPB. As a result of this situation, John L. Collyer, president of the B. F. Goodrich Company, was named special director of rubber programs on March 21, with J. Edward Trainer, vice president in charge of production of the Firestone Tire and Rubber Company, as assistant special director. Robert S. Wilson, vice president in charge of sales of the Goodyear Tire and Rubber Company, succeeded Mr. Collyer as special director on July 20, with George M. Tisdale, vice president of the United States Rubber Company, as his assistant director.

Conditions in the industry improved considerably shortly after the complete end of global warfare. Early in September all restrictions on products manufactured of all types of rubber, other than natural rubber and butyl, were lifted. Continued control over the consumption of natural rubber was deemed essential until sufficient supplies began to come from the liberated rubber-producing areas in the Far East, and over butyl until the production of that special synthetic rubber was substantially increased. Because of its superior impermeability to air, practically all supplies of butyl went into the manufacture of inner tubes.

The end of the Second World War also witnessed a number of other changes in the industry. Restrictions on the amount of passenger, motorcycle and bicycle tires that could be manufactured, strictly limited up to that time, were removed; regulations governing the manufacture and sale of rubber processing equipment were revoked; the tire allotment plan covering the production of truck, bus, tractor, implement and industrial tires was withdrawn; rationing of industrial rubber footwear was ended; the nation-wide 35-miles-an-hour speed limit was lifted. Because of the critical need of passenger tires, the rationing of such tires by the Office of Price Administration was continued, but greatly modified. Tire rationing was officially ended as of Jan. 1, 1946.

Only a trickle of natural rubber reached the United States from the Far East following Japan's collapse. Accordingly not only was the consumption of natural rubber continued under control, but regulations governing its use were tightened. Under one amendment to the WPB Rubber Order, the use of some synthetic rubber was decreed for all types, kinds and sizes of tires, the percentage of natural rubber permissible ranging from 7 to 95, the latter percentage in S-11 constructions only. According to a report by the Rubber Reserve Company, imports of natural rubber into the United States in the 1940–45 period amounted to 930,000 long tons, of which 116,000 were received during 1944. It is estimated that approximately 140,000 tons were imported during 1945.

Production of synthetic rubber under the government program in 1945 reached an estimated 910,000 tons, of which approximately 850,000 tons were consumed. Total supplies of natural and synthetic rubber amounted to approximately 1,050,000 tons, of which some 978,000 tons were consumed, including approximately 108,000 tons exported to England, Brazil, Mexico, and other countries. Stockpiles of 230,000 tons of synthetic rubber and 105,000 tons of natural rubber were on hand at the year end.

Several new types of synthetic rubber were developed during the year. A number of special grades of GR-S, produced in government-owned plants, were made available by the Rubber Reserve Company, including GR-S-AC, GR-S-10, GR-S-38, GR-S-Black 1, and GR-S-Black 1AC. The Mooney viscosities of these various grades differ due to manufacturing procedures. A new silicone rubber, called Silastic, which remains elastic after heating at temperatures up to 500° F. and retains flexibility at temperatures as low as minus 70° F., was developed by the Dow Corning Corporation. The development of "Ethanite Rubber," a new synthetic produced from methane gas, reported to possess the wear and resilience of natural rubber and to be superior to such rubber in resistance to sunlight and oil, was announced by a syndicate of Detroit business leaders. A new synthetic rubber latex, a modification of the butadiene-styrene type of synthetic rubber, featuring greater uniformity

than other available synthetic latices, was developed by the United States Rubber Company.

Advances in manufacturing processes were recorded during the year, including the application of high frequency vulcanization on an assembly line basis. Goodrich and Firestone acquired the American rights to the Dufour and Leduc high frequency patents, considered basic patents in the rubber and plastics field. Both companies adopted the process in their own plants and formed a joint company, Industry Inventions, Inc., to permit other manufacturers to utilize the process under a royalty arrangement. According to Firestone, foamed sponge rubber is cured in 4 minutes by the process as compared with 30 minutes by steam; large hard rubber wheels are cured in 18 minutes, against 5 hours by steam; brake blocks in 48 minutes against 7 hours; elastic thread in 1½ minutes against 15 minutes. Firestone, incidentally, opened a new $2,000,000 research laboratory in Akron, Ohio, during the year.

A new rubber compounding process reported to reduce the danger of heat failure of heavy-duty synthetic rubber tires was also developed by Firestone. The process covers the incorporation of magnesium sulphate into mixtures of latex and zinc oxide so that equal parts of the two materials can be mixed together and coagulated easily and quickly. Two interesting test methods were also developed during the year, one a method of testing static conductive rubber belts by Goodrich, and the other a quick method for testing individual rubber life saving suits, by inflating the suit with air containing ammonia and detecting the ammonia by a change of color of a dye, by the United States Testing Company.

In step with efforts to improve the processability of the various grades of synthetic rubber, chemical manufacturers continued to develop and introduce new rubber chemicals and compounding ingredients. These included: Setsit-5, a new accelerator for GR-S latex designed to obtain faster curing of latex films; Niathal, a tetrachloro phthalic anhydride, offered as an intermediate or compounding material in the manufacture of synthetic rubbers, resins, plasticizers, insulating materials and protective coatings; No 220 oil, a softener for reclaimed rubber which serves to make reclaims more compatible with synthetic rubber stocks; Insulac W, a specially-treated gilsonite, which easily disperses in Banbury or mill mixing of GR-S; ParaLene-W, a light-colored softener and plasticizer prepared to meet the demand for light-colored GR-S stocks; dioctyl sebacate, a low-temperature plasticizer for polyvinyl chloride; Marmix, a water dispersion of an organic resin, finding application with GR-S latex where high tensiles and abrasion and tear resistance are required; NTD-181.5-B, a nitrile plasticizer for butadiene-acrylonitrile rubbers and vinyl resins; Micronoil Moldeze-R, a combination lubricant and metal treatment, serving both as a mold lubricant and as a surface finishing agent for rubber; Neutroids, a series of latex and emulsion stabilizers for synthetic rubber latices; Peptizer P-12, a free-flowing, non-packing powdered material, which retards the recovery of neoprene stocks during storage. In addition to these chemicals, Goodyear developed a chlorinated synthetic rubber and a new synthetic rubber resin which acts as a replacement for carbon black and imparts rigidity to synthetic rubber itself.

Although machinery developments were not startling, several interesting pieces of apparatus were introduced during the year, including a new automatic tire-building machine capable of producing a passenger car tire every two minutes, ready for curing; a new interval timer especially designed for use in the molding of rubber and plastics, operated and timed by a Telechron self-starting motor; a new brush-backed sanding wheel, which sands, deburrs, and finishes rubber products, removing flash from finished products; a web guide, pneumatically-operated and directly actuated by a circular vacuum chamber, which keeps the trim or weave of rolls well under one-half inch; a motor-driven, floor-mounted unit which prints identifications and other marks on molded and extruded goods during the processing operation; an expander which produces maximum width with minimum warp tension and without undue wear on the surface of the expander in the finishing or coating of fabrics; and a new 36-inch high-speed capstan for rubber and resin-insulated wire. The laboratory field witnessed the introduction of a cord tension vibrator for the fatigue testing by vibration of cords for tires and belting, a new aging bath for use in estimating the comparative ability of rubber to withstand the effect of immersion in oils and liquids, a new instrument for measuring the surface roughness of calendered rubber sheet and other types of rubber products, and a polarizer to determine the amount of strain produced by fabrication or mechanical manipulation of transparent, rigid and nonrigid plastic materials.

The rubber manufacturing industry had few reconversion problems following the end of the war and the accompanying revocations of manufacturing regulations. Few luxury and nonessential items for civilian use, however, made their appearance by the year end. Most new rubber products developed during the year were again military in nature, including a new antiexposure suit for use by the air forces to combat shock from contact with icy waters, a bullet-hole patching device for sealing fuel tanks punctured by gunfire, a pneumatic type of tourniquet designed to eliminate the danger of post-operative gangrene, a new knee-length boot designed for wet-cold climates, a pressurized stratosuit which can be donned in two minutes or less, and a series of waterproof packaging and fabricating materials for weaving into cloth for a variety of purposes. An important innovation in postwar seating was promised by United States Rubber through the development of a new type cushion support for latex cushioning material which, by virtue of its design, will incorporate the leaf spring principle into seating.

The industry had its share of labor-management difficulties during the year, the Navy Department taking over the operation of several plants of the Goodyear Tire and Rubber Company in Akron, Ohio, and the plant of the Lord Manufacturing Company in Erie, Pa., for limited periods, while the army occupied the tire plants of the United States Rubber Company at Detroit, Mich., for several weeks. The recorded history of the rubber industry was changed during the year by the discovery of an old Spanish manuscript which indicated that rubber was used commercially as early as 1785. The year also marked the 50th anniversary of pneumatic tires. Toward the latter part of the year the Inter-Agency Policy Committee on Rubber was organized by the director of War Mobilization and Reconversion, the chief function of which was to formulate a co-ordinated national policy on rubber for the United States.

At the close of the war the Rubber Manufacturers Association issued some statistics indicating the role played by the rubber industry in total victory. Airplane tire production climbed from 39,000 units in 1939 to 1,417,000 in 1944; military tires from 7,680,000 units to 14,713,000; the production of camelback from 54,400,000 pounds to 359,711,000 pounds. During the course of the war more than 10,000,000 hard rubber battery cases were produced for the armed forces, 45,000,000 pairs of rubber boots and shoes, 77,000,000 pairs of rubber soles, 104,000,000 pairs of rubber heels. From January 1944 to July 1945, more than 360,000,000 yards of fabrics were coated and converted to military raincoats, ponchos, jungle hammocks, flotation gear, etc. In all, the industry produced some 30,000 different products for the war effort and essential civilian needs. See also CHEMISTRY; FOREST SERVICE, U.S.

M. E. LERNER,
Editor, The Rubber Age.

RUM. See DISTILLED SPIRITS.

RUMANIA. The kingdom of Rumania (prior to its dismemberment in 1940) lay in the southeast of central Europe, and was bounded east by the Black Sea and Soviet Russia, by Bulgaria on the south, by Yugoslavia on the west, and by Hungary, Poland, and Soviet Russia on the north. A united Rumania was finally achieved in 1859, when the Rumanian principalities of Walachia and Moldavia elected the Moldavian Col. Alexandru Ioan Cuza to be their prince. In 1866 Prince Karl of the house of Hohenzollern was invited to become ruler; he took an oath before Parliament as hereditary prince of Rumania, becoming Carol (Charles) I. In 1881 he was proclaimed king. As a result of the First World War, the provinces of Bessarabia, Bucovina, Transylvania, the Banat, and Crisana-Maramureş were added; but during 1940 much of the territory gained was restored to those countries from which it was taken, as indicated under the following heading.

Area and Population.—As a result of the addition of territories to Rumania after the First World War, the area of the country was 113,884 square miles, with a population (1939) of 19,933,802. Among these territories were the provinces of Bessarabia, Bucovina, southern Dobruja, and Transylvania. In 1940, as internal disorders grew in Rumania, and as the European war moved toward the Balkans, Rumania was forced to return these provinces, entirely or in part, to the nations from which they had been taken. Bessarabia and northern Bucovina, with an area of 19,300 square miles and an estimated population of about 3,500,000, were occupied by Soviet Russia, following an ultimatum from Moscow, on June 28–29, 1940 (retaken by German forces July 1941). The northern part of Transylvania was restored to Hungary on Aug. 30, 1940 after a settlement arbitrated in Vienna by Germany and Italy, thus taking from Rumania an estimated 17,370 square miles of territory with a population of about 2,385,987. Southern Dobruja, with an area of 2,982 square miles and a population of about 378,344, was ceded to Bulgaria by Rumania on September 7, and was promptly occupied by Bulgarian troops. Thus, Rumania's total area in 1941 was 94,284 square miles with a population of approximately 17,018,000. The chief cities remaining within Rumanian territory were Bucharest, the capital (pop. 648,162), Galaţi (102,232), and Timişoara (89,872).

Constitution and Government.—The Rumanian Constitution was adopted Feb. 27, 1938. According to it, Rumanian citizens are equal before the law, regardless of racial origin or religion. However, no Rumanian may advocate in speech or writing a change in the form of government, a change in the distribution of the wealth of others, exemption from taxation, or class trouble. The clergy may not use their ritual authority for political propaganda, and all political associations based on religious pretexts are prohibited. The state guarantees to all religious denominations equal liberty and protection if their practices are not contrary to public order, good morals, and public security. Furthermore, it is stated that Rumanians shall enjoy liberty of conscience, work, press, assembly, and association. There is a bicameral legislature consisting of a Senate and a House of Deputies. Members of the Senate are nominated by the king, elected, or are life members. Life senators include the heir to the throne, all princes of the royal family, the patriarch, and the metropolitan, the bishops of the Orthodox Church and those of the Greek Catholic Church. Members of the Chamber of Deputies are elected for six years. The king has a suspensive veto over all laws passed by the Parliament. The executive is vested in a council of ministers.

As democratic as this may sound, very soon after the outbreak of the Second World War, the government was easily converted into a totalitarian one. Former King Carol II went into exile, and Gen. Ion Antonescu took over. Rumania then became overnight a pro-Fascist military dictatorship, with little if any authority vested in young King Michael, son and nominal successor of Carol II. Following the invasion of Rumania by the Soviet forces and its conquest by the Russian armies, Rumania on Aug. 23, 1944 accepted the terms of the Soviet armistice. Thereafter a National Government was set up to replace the Antonescu dictatorship.

Religion and Education.—The national church of Rumania is the Orthodox Church, but freedom of worship, provided its practice is not contrary to public order, was recognized by the constitution. In 1938 there were about 13,200,000 members of the Orthodox Church, 1,426,813 Greek Catholics, 1,200,000 Roman Catholics, 720,000 Reformists, 400,000 Lutherans, 75,000 Unitarians, 1,500,000 Jews, 260,000 Moslems, and 140,000 others.

Education was free and compulsory—but there were not enough schools for all. In 1938–39, before the territorial losses suffered in 1940, there were 2,151 infant schools with 120,516 pupils; 175 private and confessional schools with 8,922 pupils; and 1,405 confessional and private elementary schools with 133,184 pupils. In 1937-38, secondary public schools numbered 716, with 168,331 pupils, and 209 secondary private and confessional schools, with 35,923 pupils. For higher education there were three universities—in Bucharest, in Iasi, and in Cernăuti—with a total of 30,771 students.

Finance.—Revenue for the fiscal year 1942–43 was estimated at 71,200,000,000 lei and expenditures at 72,500,000,000 lei. The public debt on April 1, 1939 amounted to 104,127,428,054 lei, of which 68,899,280,215 lei was external debt. The Rumania leu was valued at $0.00486 in U.S. currency in 1941.

Production.—Rumania is essentially agricultural and pastoral. Nearly half of the total area of the kingdom before the territorial losses of 1940 was under cultivation. The country has exceptionally

fertile soil. Crops include various cereals, sugar beets, rape seed, hemp, and soybeans. Vines and fruits are abundant. Rumania's feudal agrarian system was one of the most backward in Europe. Out of 19,750,000 hectares of arable land, 13,385,000 hectares were reported to belong to 3,255,000 peasants, while 6,365,000 hectares belonged to 25,000 large landowners. Leaders of the Patriotic League pointed out that 12,000 of the largest landowners owned as much land as 2,000,000 peasants. Sweeping land reforms began in March 1945, following the appointment of Agriculture Minister Romulu Zafroni under the new regime headed by Premier Peter Groza. Huge estates were divided up among the peasantry, promising an end to the Rumanian variety of sharecropping known as *dijma*, under which the landowner frequently took as much as two thirds or more of the crops raised by peasant tenants. The National Democratic Front demanded that all landed properties exceeding 50 hectares be divided among landless and small peasants, the land to be acquired as private property for a suitable price, equivalent to the value of a year's harvest, payment to be spread over a period of 10 years. According to official data of the Finance Department of the Rumanian Ministry of Agriculture, 6,400,000 hectares of land remained in the hands of big landowners. The principal minerals are salt, lignite, iron and copper ores, natural gas, and petroleum. The salt mines, which are state-owned, have an annual output of approximately 300,000 tons. Crude oil produced in 1943 amounted to 8,700,000 metric tons, as compared with 5,150,000 metric tons in 1942.

There were in 1937 a total of 3,512 industrial establishments, including flour milling, brewing, and distilling plants, employing 278,919 persons. Capital invested in these plants aggregated 46,275,399,000 lei.

Oils.—Oils, minerals, and vegetables account for the German Reich's interest in Rumania. Although Rumanian oil production, centered around Ploești, is only about 3 per cent of the world total, amounting to 8,700,000 metric tons in 1943, it is the most important European oil source outside the Soviet Union. The bombing of the Ploesti oil fields and refineries by Allied planes, Aug. 1, 1943, was reported to have destroyed the refining facilities through which passed a third of the Axis oil supply for motorized equipment on the Italian and Russian fronts. Further bombing attacks by the American and Russian airmen did much additional damage. Rumania's output of natural gas in 1942 was reported as 1,545,000,000 cubic meters.

Foreign Trade.—Rumania's exports in the first half of 1941 amounted to 15,000,000 lei, as against 20,000,000 lei for the corresponding period of 1940. Imports in the first six months of 1941 totaled 9,000,000 lei, as compared with about 15,000,000 in the first half of 1940. Of the imports, 63 per cent in the 1941 period came from Germany which in turn took 66 per cent of the country's exports. Other leading customers, in order of importance, were Italy, Switzerland, Turkey, Bulgaria, and Sweden.

Communications.—The principal railways in Rumania are state-owned and had in 1940 a total mileage of 9,505. Highways totaled 65,670 miles in 1938, of which 8,393 miles were national roads, 19,140 miles departmental roads, and 38,137 miles commercial roads. There were 48,708 miles of telegraph wire and cable in 1938, and 93,155 miles of telephone lines.

Principal Events of 1945.—On Oct. 11, 1944 the first members of the Allied Control Commission arrived at Bucharest. Premier Constantin Sanatescu's government (a coalition of Peasant, Liberal, Social Democratic, and Communist parties) reshuffled its membership on November 4 by eliminating the Peasant and Socialist representatives. On December 6, Gen. Nicolai Rădescu replaced General Sanatescu as premier, and laws reversing the anti-Semitic ordinances of the Antonescu regime were passed. The latent conflict between the coalition government and the Communists burst into the open on Feb. 24, 1945 when large groups of armed Communists of the Communist-inspired National Democratic Front attempted to overthrow the government. Shooting simultaneously occurred in several provincial towns. As a result, four days later the entire Cabinet resigned. On March 1, 1945 the king appointed Prince Barbu Stirbey (it was he who broke the ice for negotiations resulting in Rumania's armistice with the Allies in 1944) to form a new government; but there was still unrest in the country. The king then selected Dr. Peter Groza, a wealthy Transylvanian and head of the Leftist National Democratic Front, as prime minister. General Rădescu had to take refuge in the British legation in Bucharest. The Soviet-approved Groza was allowed by the Soviet government (March 10) to take over the control of northern Transylvania. The anti-Communist press was suppressed, and soon for the Rumanian man in the street there was no more freedom of expression than under the Nazis. There was the immediate problem created by the National Democratic Front's insistence on immediate land reform. Proprietors of farms in excess of 125 acres, knowing that they were to be expropriated, saw no reason to invest any money in seed or to make any effort to fill their quotas. Iuliu Maniu, the 72-year-old president of the National Peasant Party, went into retirement March 18, seeing no chance for a free election.

In January 1945, acting on a decree entitled "Conscription for Labor in the USSR of Rumanian Citizens of German Ethnographical Origin," the Allied-Soviet armistice commission began deporting 70,000 persons of German origins to Central Asia; and 36,000 refugees who had fled from Bessarabia in 1940 prior to the Soviet occupation were removed to other parts of the Soviet Union. Anna Pauker, an underground Communist worker until her arrest in 1935, who later was freed to go to the Soviet Union, became the real power in Rumania, next to the Communist members of the government: Lucretiu Patrascanu, minister of justice; Petre Constantinescu-Iași, minister of propaganda; and Gheorghe Gheorghui-Dej, minister of public works. On September 8, Soviet dissatisfaction with the Anglo-American policy toward the government of Groza was brought into the open with a vigorous editorial in *Izvestia* charging that King Michael asked outside intervention in forming a representative government under pressure of American and British representatives. In September Moscow eased the armistice terms for Rumania by agreeing to a "request" to return control of Rumanian railroads, restore part of Rumania's Black Sea and Danube shipping fleets taken as prizes, repatriate Rumanian prisoners of war in return for "Soviet citizens" (Bessarabian and Bucovinian) residing in Rumania, and reduce Rumania's $300,000,000 reparations debt.

JOSEPH S. ROUCEK,
Professor of Political Science, Hofstra College.

RUNDSTEDT, Karl Rudolf Gerd von, German Army officer: b. Aschersleben, Prussia, Dec. 12, 1875. Once called by General Eisenhower "the greatest German strategist" of the Second World War, Marshal von Rundstedt engineered the German breakthrough at Sedan in 1940; the drive through the Ukraine in 1941; the Battle of the Bulge, 1944–45; and until Allied armies began swarming across the Rhine in March of the latter year, was supreme German commander in Western Europe. On May 1, in the final days of the European war, he was taken prisoner by American Seventh Army units near Bad Tolz, Bavaria. Interviewed shortly after his capture by United States correspondents, von Rundstedt gave what he considered the principal factors determining Germany's loss of the war—Allied strategic and tactical bombing; lack of oil and gasoline to power motorized German transport; and the power of Allied naval guns which at the time of the Normandy invasion reached deep inland, making it impossible to move forward reserves to stem the Allied invasion tide.

Son of a general and typical of the stiff-necked Prussian army officer, von Rundstedt was groomed for a military career almost from infancy. In the First World War, he distinguished himself in the Alsace sector as commander of Infantry Regiment 171; was summoned by the German General Staff to help plan grand strategy; and remained with the group until the war's end.

RUPERTUS, William Henry, United States Marine Corps officer: b. Washington, D.C., Nov. 14, 1889; d. there, March 25, 1945. Major General Rupertus received the Navy Cross and the Distinguished Service Medal for his command of the 1st Marine Division in the Solomons and the New Britain campaigns of the Second World War. General Rupertus personally led the marines who captured Tulagi, Gavutu, and the Florida Islands, and he participated in all engagements of the First Marine division from Guadalcanal to Peleliu. After the Peleliu campaign in the fall of 1944, he was brought back to the Marine Corps Base at Quantico, where he served as commandant of the corps school.

RURAL ELECTRIFICATION ADMINISTRATION. More than 135,000 rural consumers were added to the number receiving electric service from borrowers of the Rural Electrification Administration during the fiscal year ended June 30, 1945. As during the previous year when approximately 110,000 consumers were added, most of these new consumers consisted of farms qualifying for service under the emergency regulations of the War Production Board authorizing the connection of farms able to employ electrical equipment in livestock, dairy and poultry production.

At the close of the fiscal year REA had allocated a total of $564,968,184 as loans to 926 borrowers consisting of 852 locally-owned co-operatives, 55 public bodies, and 19 private utilities. Of the total, 832 borrowers had 424,072 miles of line in operation furnishing power to 1,287,347 consumers in 46 states, Alaska, and the Virgin Islands.

REA borrowers had a gross revenue of $68,151,594 in the fiscal year ended June 30, 1945, and as a group, constituted one of the largest blocks of electrical purchasing power in the nation. For the year ended June 30, 1945, these borrowers purchased 2,263,764,867 kilowatt-hours of electric energy at wholesale. The increasing use of electric power in farm production is shown by the fact that during December 1944 REA-financed systems under 3 years old reported that their farm consumers used an average of 59 kilowatt-hours monthly. However, on systems over 6 years old the average monthly consumption was 97 kilowatt-hours. Borrowers also report increased use of power by other rural consumers, such as mines, factories, and commercial enterprises.

As of June 30, 1945, REA had advanced $427,566,738 as loans to its borrowers. These borrowers had paid in interest and repayments of principal a total of $94,588,561.75 to REA on their loans, against $75,810,770.56 due at that time.

During the year, REA borrowers were very active in the preparation of plans to extend electric service on an area-wide basis—averaging in the thin areas with those more densely settled—to unserved rural consumers as soon as war conditions would permit the use of materials for this purpose. The relaxation of War Production Board regulations in May 1945 permitted borrowers to begin the execution of their plans. The rapid expansion in rural electrification anticipated in the immediate future was contained in a report of the United States Department of Agriculture Committee on Postwar Programs outlining an REA 3-year program for the construction of lines to bring service to about 1,300,000 additional consumers and a 5-year program for all agencies to provide service to 3,655,000 rural consumers. On June 30, 1945, REA reported that it had loan applications totaling nearly $240,000,000.

An important development during the fiscal year was the passage in September 1944 of legislation liberalizing REA loan terms and expanding the administration's lending authorization which opens the way for a broadening of REA-financed rural electrification into thinner territory. Under these provisions, borrowers will be enabled to extend service on the new terms into many areas that might not have been considered economical under the old terms. Borrowers thus will be able to extend further the principle of area coverage on which the REA program is based.

REA was established by Executive Order on May 11, 1935, as an emergency agency. The Rural Electrification Act of 1936, approved May 20, 1936, created REA as a continuing agency and authorized the lending of funds to finance facilities to furnish central station service to persons in rural areas not receiving it. On July 1, 1939, REA became an agency in the Department of Agriculture. REA headquarters are in Washington, D.C. Claude R. Wickard is the administrator.

ROBERT T. BEALL,
Economist, Rural Electrification Administration.

RURAL TELEPHONES. See TELEPHONE PROGRESS, Section 5.

RUSSELL, James Earl, American educator: b. Hamden, Delaware County, N.Y., July 1, 1864; d. Trenton, N.J., Nov. 4, 1945. Over a span of almost 50 years as a professional educator, Dr. Russell had a great influence on educational standards in the United States and many foreign countries. Dean of Teachers College, Columbia University, from 1897 to 1927, he campaigned unceasingly for the scientific movement in education and closer co-operation between the school and the community. Starting with a small private normal school of 169 girl students when he became dean, Dr. Russell, at his retirement, had

built Teachers College into what is considered by many the leading school of education in the United States, with an enrollment of 5,000 students, a teaching staff that had increased from 20 to 250, and an endowment of $3,000,000.

After graduating from Cornell University in 1887, Dr. Russell studied at the universities of Jena, Leipzig, and Berlin (1893–95), receiving his Ph.D. degree from Leipzig in 1894. He had served as principal of Cascadilla School in Ithaca (1890–93); European commissioner for the regents of the University of the State of New York, and European agent for the United States Bureau of Education (1893–95); and as professor of philosophy and pedagogy at the University of Colorado (1895–97). He was president of the American Association for Adult Education from 1926–30, and chairman since 1930.

RUSSELL SAGE FOUNDATION. Established by Mrs. Russell Sage in 1907 for the purpose of promoting the improvement of social and living conditions in the United States of America, the original gift amounted to $10,000,000, to which Mrs. Sage later added $5,000,000 by will. The general aim of the foundation is to study the causes of adverse social and living conditions and to make available to citizens information which will assist them to relieve, remedy, or prevent such conditions. The departments of the foundation which carry on this work are: Charity Organization; Consumer Credit Studies; Industrial Studies; Social Work Interpretation; Social Work Year Book; Statistics; Studies in the Professions; The Arts and Social Work; Library; Publications; and General Administration. The foundation, while not primarily a contributing organization, also makes grants to agencies with kindred objectives, presently devoting less than one third of its income to this purpose.

Officers.—The officers and trustees of the foundation are: Morris Hadley, president; Joseph P. Chamberlain, vice president; Arthur H. Ham, treasurer; John M. Glenn, secretary; Lindsay Bradford, Harry Woodburn Chase, Eli Whitney Debevoise, Johnston de Forest, Robert M. MacIver, Dave H. Morris, Jr., Lawson Purdy, and Harold T. White. Shelby M. Harrison is general director.

Charity Organization.—The interests of this department have for several years centered in studies of public welfare objectives and methods, government relief policy, the social security program, and social work organization and activity. The problems currently having the consideration of the department are: (1) community organization for health and welfare in the postwar period; (2) measures for the administration of overseas relief; (3) public assistance policy in the light of governmental practices during the past decade.

Consumer Credit Studies.—The work of this department is directed toward improvement of the conditions under which credit is available to families of limited means, prevention of abuses of small debtors by creditors, furtherance of statistical knowledge concerning consumer credit, and the interpretation of the social and economic significance of developments in the field of consumer credit. The director, while retaining responsibility for the department's work, was lent to the federal government for emergency work during the period from May 1941 to February 1944. He participated in the development of facilities and techniques for restricting consumer credit as a wartime measure, which represented the practical application of information gathered by this department in several years' study of the economic effects of consumer credit fluctuations. Later he served successively as chief of the Automobile Rationing Branch, chief of Consumer Requirements Branch, and director of the Credit Policy Office in the Office of Price Administration; as associate chief of the Civilian Food Requirements Branch of the War Food Administration. Since February 1944 he has been on leave for work with UNRRA, first as economic adviser to the Bureau of Supply and currently as deputy chief of the Yugoslav mission. The department has continued to advise with federal and state governments, social agencies, and individuals on regulatory legislation in the consumer credit field.

Industrial Studies.—The scientific discovery of the ways of releasing atomic energy which led to the production of the atomic bomb was recorded as a new source of power in the department's study, *Technology and Livelihood*, published in January 1944. The discovery was mentioned as illustrative of dynamic change in methods of production resulting from science which presents to society the problem of social adjustment to technological change. The department is carrying on a further study of this problem, under the title *New Productivity for Living Standards*.

In accord with the foundation's aim to improve social and living conditions, this department includes in its area of interest trade unions as a social institution capable of promoting progressively higher standards of living. A continuing study which the department is carrying on deals with the history of the unions in their relations with industrial management and with government in the period 1929–45.

Social Work Interpretation.—This department seeks to increase public understanding of social and health problems and services. Its studies, publications, and other services are directed toward development of suitable training for public relations personnel and more effective use of public information programs on the part of both governmental and voluntary agencies. The main activity of the department at present is a continuation of its case studies dealing with public relations and publicity in national, state, and local agencies. Two of these studies have been published, one in 1943 and the other in 1944. Two others are nearing completion.

Social Work Year Book.—The foundation publishes biennially the *Social Work Year Book*, a concise encyclopedia describing the current status of organized social work and related fields. The *Year Book* is intended for use by social workers, practitioners in related fields, publicists, students of the social sciences, legislators, public administrators, librarians, teachers, agency board members, and other interested persons. The 1945 editions reflects the many changes in social work brought about by the war.

Statistics.—This department advises concerning statistical procedure in foundation studies and reviews statistical material intended for publication by the foundation. Much of its work has been directed to the improvement of statistics of social work, and consultation on this subject represents an important part of its function. At present, operating statistics of selected agencies in family and medical social work are published monthly. Personnel and salary studies in several divisions of social work have been made and published recently.

Studies in the Professions.—Prior to 1944 when this department was established for continued examination of questions relating to the professions, the work had been conducted for some ten years as a special project of the Department of Statistics. Monographs have been published, some in several editions, on engineering, medicine, law, nursing, and social work. They have been primarily concerned with the adequacy, both in quantity and quality, of the service rendered by each profession. Because of their influence in determining adequacy, the following topics have been considered: professional training, professional associations, number and distribution of personnel within the particular profession, demand versus need for service, salaries. At present the department is preparing three pamphlets on the responsibility of the law school to train for public service. It is also making an examination of legal aid and other forms of legal assistance for persons of small economic means.

The Arts and Social Work.—This department conducts studies of the influence of the arts upon people in everyday life. It attempts to bring art, in its broad sense, into closer relation with social work. Its studies are intended to aid workers, particularly in rural areas, in improving their standards of craftsmanship, and to contribute to the establishment of handicrafts on a more permanent basis. Its reports have pointed out the important values which come to both makers and users from the practice of handicrafts. Experiments are also carried out in creative expression in the visual arts among several groups of adults untrained in the arts, and in institutions for handicapped persons. An exhibition of beauty for the blind is in preparation.

Library.—The library of the foundation contains approximately 43,000 bound volumes—including research reports, periodicals, and conference proceedings—and 165,000 unbound reports, bulletins, and pamphlets, all covering social welfare and related fields. The library is available to students of social problems daily, except Sundays and legal holidays, from 8:45 A.M. to 5:00 P.M. From October 1 to June 15 it is open also five evenings a week until 9:00 P.M. It is closed on Saturday afternoon from June 1 through September 30. Nearly 35,000 persons used its facilities in the last year, October 1944–September 1945.

Publications.—All books and pamphlets issued by the foundation (125 books and over 200 pamphlets to date) are moderately priced to facilitate their wide distribution among interested persons. Important recent publications are the following: *Technology and Livelihood*, by Mary L. Fleddérus and Mary van Kleeck; *Institutions Serving Children*, by Howard W. Hopkirk; *Building a Popular Movement*, by Harold P. Levy; *The Recent Trend of Salaries in Child Welfare Agencies*, and *Operation Statistics of Selected Family Casework Agencies, 1943*, by Ralph G. Hurlin; and a bibliography on *Rehabilitation of the Disabled Serviceman*. Joanna C. Colcord's *Your Community* had its seventh printing and has become the second most widely distributed of all foundation books.

The offices of the foundation are at 130 East 22d Street, New York 10, N.Y.

SHELBY M. HARRISON,
General Director, Russell Sage Foundation.

RUSSIA. See UNION OF SOVIET SOCIALIST REPUBLICS.

RUSSIAN NAVY. See NAVAL PROGRESS.

RUSSIAN SOVIET FEDERATED SOCIALIST REPUBLIC. See UNION OF SOVIET SOCIALIST REPUBLICS.

RUTHENIA. Formerly a province of Czechoslovakia known as Podkarpatska, Carpatho-Ukraine, or Subcarpathian Ukraine, now incorporated in the Soviet Union as the Transcarpathian Region of the Ukrainian S.S.R. As a Czechoslovak province, the area (1935) was 4,871 square miles, and the population numbered (1930) 725,357. The country is mountainous and heavily timbered and, lying on the western slopes of the Carpathian Mountains, has great strategic value. Lumbering and stock raising are the principal occupations of the people, and chemicals are manufactured on a small scale. Hungarians constituted 15 per cent of the inhabitants of this most sparsely populated province of Czechoslovakia, and Czechs 5 per cent; the overwhelming majority are Ruthenians (people of the place), a mixture of Slavic races speaking a dialect of Russian.

Ruthenia had been part of Hungary for 11 centuries prior to 1918, when, following that country's defeat in the First World War, councils representing the three major ethnic groups voted for incorporation into the newly constituted Czechoslovak state as an autonomous province. In November 1938, when the Sudetenland was detached from Czechoslovakia and annexed by Germany, the latter countenanced Hungarian occupation of part of Ruthenia; and Hungary seized the remainder of the country on March 14, 1939, 24 hours after it had declared its independence. Russian troops expelled German occupation forces from Ruthenia in October 1944, and early the next year it resumed its position as part of reconstituted Czechoslovakia. By an agreement signed in Moscow on June 29, 1945, the Czechoslovak government ceded Ruthenia to the Soviet Union, provision being made for two commissions to fix the new boundaries between the two countries and to liquidate property in Ruthenia. While the majority of the inhabitants might have been expected to vote for Russian sovereignty, before the decision was taken there had been neither international consultation nor a plebiscite of the people concerned. Up to January 1946, however, Slovaks and Czechs in Ruthenia had the right to apply for Czechoslovak citizenship, and Russians and Ukrainians in all parts of Czechoslovakia might choose to become citizens of the Soviet Union. Czechoslovakia no longer has a common frontier with Rumania, and the project for a like frontier between Hungary and Poland has been forestalled; and by crossing the Carpathians, the traditional "boundary of Europe," the Soviet government acquires a common frontier with Hungary, fulfilling an ambition formulated first in the era of the Russian Empire.

RYAN, John Augustine, American ecclesiastic: b. Dakota County, Minn., May 25, 1869; d. St. Paul, Minn., Sept. 16, 1945. Monsignor Ryan, whose efforts played a large role in writing minimum wage laws into American social legislation and whose work was one of the chief factors in rousing social consciousness among the American people, was the leader of the liberal wing of the Roman Catholic Church in America.

Monsignor Ryan prepared for the priesthood at the St. Paul Seminary and was ordained in 1898, when he was sent to Catholic University in Washington, D.C., for four years of postgraduate

study. He returned to St. Paul Seminary in 1902 and spent the next 13 years there as professor of moral theology and economics. In 1906 his doctoral dissertation, *A Living Wage: Its Ethical and Economic Aspects* was published. This book made minimum wage legislation a goal of American progressives and prepared the way for state and federal laws. Monsignor Ryan himself wrote the Minnesota Minimum Wage Law, the pattern for subsequent acts. In 1909 he presented the first of his programs for social reform by legislation. It included the minimum wage, the eight-hour day, child labor, conciliation and arbitration boards, state employment agencies, and social insurance, as well as control of public utilities, monopolies, and speculation, and taxation of incomes, inheritances, and land values. Returning to Washington in 1915, he joined the faculty of Catholic University and Trinity College, teaching moral theology, industrial ethics, and political science. During the First World War, he drew up a program for social reconstruction. It was adopted by the bishops who were members of the administrative committee of the National Catholic War Council, predecessor of the National Catholic Welfare Conference (NCWC), and promulgated by them in 1919 as the Bishop's Program. To achieve the goals of this program, the social action department of the NCWC was established and Monsignor Ryan in 1920 was installed as director. He was an influential supporter of the late President Franklin D. Roosevelt and served as a member of the Industrial Appeals Board of the National Recovery Administration. In 1937 he was elevated to the monsignori, and two years later retired from Catholic University.

Among Monsignor Ryan's many books are *Distributive Justice* (1916); *The Church and Socialism* (1919); *Social Reconstruction* (1920); *Declining Liberty* (1927); *The Catholic Church and the Citizen* (1928); *A Better Economic Order* (1935); and *Social Doctrine in Action* (1941), an autobiography.

RYE. According to the October 1 estimate of the Department of Agriculture, the rye crop of the United States in 1945 amounted to 27,883,000 bushels, compared with the 1944 crop of 25,872,000 bushels, and the 1934–43 average crop of 41,434,000 bushels. South Dakota nosed out Nebraska for first place by producing 4,495,000 bushels against 4,472,000 bushels. Minnesota was the third largest producer with 2,178,000 bushels.

RYUKYU ARCHIPELAGO (also called NANSEI SHOTO and LUCHU), a chain of 55 islands belonging to Japan extending from a point 80 miles south of Kyushu to a point 73 miles northeast of Formosa. Their area is 935 square miles and the population about 455,000. The Ryukyus are divided into three main groups, the northern called Oshima Shoto, the central called Okinawa Gunto, and the southern, Sakishima Retto. The words *shoto, gunto* and *retto* are translatable, respectively, as "archipelago," "island cluster," and "string of islands." The city of Shuri in Okinawa was the ancient capital; the modern capital is neighboring Naha.

History.—Though the Chinese several times invaded the islands, beginning early in the 7th century A.D., they never annexed them. But in 1372 the Luchuans conceded Chinese overlordship. After a long period of friendship, the Japanese under the prince of Satsuma in 1609 invaded the islands and took the Luchuan king captive. A few years later they restored him to his throne upon condition of his acknowledging Japanese suzerainty. From that time the Luchuans paid tribute to both the Chinese and the Japanese empires. This anomalous state of affairs continued until 1879 when the Japanese dethroned the reigning prince and incorporated the Ryukyus as a prefecture under the name of Okinawa. When the Chinese government remonstrated, a conference was held at Peking where plenipotentiaries signed an agreement dividing the archipelago between the two claimants. The Chinese government never ratified the agreement, and the Japanese proceeded to establish their administration throughout the entire archipelago. After the Japanese conquest of Formosa in 1895, the Chinese ceased to make further claims for the Ryukyus. For the Battle of Okinawa see under MARINE CORPS, U.S.; WORLD WAR, SECOND.

S

SAINT CHRISTOPHER. See LEEWARD ISLANDS (B.W.I.).

SAINT HELENA. A British colony in the South Atlantic; comprises the island of Saint Helena (955 miles south of the equator, 1,200 miles west of Africa) and two dependencies: Ascension (700 miles northwest of Saint Helena); and Tristan da Cunha (an island group 1,500 miles south-southwest of Saint Helena). A governor (Maj. William Bain Gray appointed March 18, 1941) is assisted by an Executive Council of 5 officials and an Advisory Council having 6 nominated unofficial members. Jamestown (pop. 1,381), Saint Helena's port, is the capital of the colony.

Saint Helena.—This island 47 square miles in area, has a population (est. 1940) of 4,710. It was loaned by the (British) East India Company in 1815 as a place of exile for Napoleon Bonaparte, and after his death there (at Longwood) in 1821 the island was ceded to the crown. Revenue in 1940 amounted to £33,720, and expenditure was £33,365; with no public debt, at Dec. 31, 1940 the colony's assets exceeded liabilities by £4,857. There were 9 elementary schools (3 government, 6 state-aided) with 984 pupils in 1940. Only one third of the island can be cultivated. Nine mills (one of them operated by the government) prepare hemp from phormium flax, which is grown on a relatively large scale; fiber, tow, rope and twine constitute the island's chief exports. Lacemaking is a small industry. Exports in 1940 were valued at £29,672, and imports at £50,932. During 1940–45 the British treasury provided £78,139 to be expended on a five-year program of agricultural development (£26,000), increased educational facilities (£6,000) and housing (£20,000), and such other schemes

as improvement of the water supplies. The island's roads total 62 miles in length.

Ascension.—With an area of 34 square miles, and a population (1940) of 169, the island had no inhabitants when first occupied in 1815. It was administered by the British Admiralty until 1922, when it was annexed to the colony of Saint Helena. A resident magistrate (S. H. Cardwell), at Georgetown, is subordinate to the colonial governor. The value of Ascension has long lain in its use as a cable and wireless station. Since March 30, 1942, United States troops have been stationed on the island, where they have built an airbase used by planes en route to Africa or patrolling the South Atlantic. A distillation plant has replaced large catch basins atop Green Mountain to provide drinking water. A wide variety of vegetables has been grown for the garrison by hydroponics (the science of chemical agriculture) since January 1945, chemicals mixed with water causing the infertile volcanic gravel to yield rich crops; plants on the island grow about 10 per cent faster than they do in temperate zones.

Tristan da Cunha.—This group comprises four small islands with an aggregate area of 45 square miles: Tristan (16 square miles), Inaccessible (4 square miles), Nightingale (1 square mile), and Gough (24 square miles). Tristan, the only inhabited island (pop., 1944, 222), was annexed in 1816; the group became a dependency of Saint Helena in 1938. Authority is represented by a chief of the islanders, and an Island Council of three. Crops and livestock do well, and fishing is abundant. After Japan entered the Second World War, the British government stationed a naval detachment on Tristan Island.

SAINT KITTS. See LEEWARD ISLANDS.

SAINT LUCIA. See WINDWARD ISLANDS.

SAINT PIERRE AND MIQUELON, pyâr and mĭk ē-lŏn′. Largest islands of two small groups off the south coast of Newfoundland and belonging to France. The area of the St. Pierre group is 10 square miles, with a population estimated in 1944 at 3,600; and of the Miquelon group, 83 square miles, with a population of 520. The chief town and capital is St. Pierre. Elementary education is free. There are six schools with 900 pupils, a number of infant schools with 150 pupils, two private schools, and a private boarding school. Cod fishing is the chief industry. Being mostly barren rock, the islands are not adapted to agriculture. Imports, consisting of textiles, salt, foodstuffs, meat, and wines, had a value of 30,338,370 francs in 1943, while exports, wholly of fish and fish products, were valued at 10,259,434 francs. The budget for 1940 balanced at 13,738,690 francs. There is regular steamer communication with North Sydney and Halifax and telegraphic connection with Europe and the American continent.

SAINT VINCENT. See WINDWARD ISLANDS.

SAIPAN. See JAPANESE SOUTH SEA ISLANDS.

SAKHALIN, sà-kà-lēn′. An island off the east coast of Siberia, north of Japan. Formerly part of the Chinese Empire, it was occupied by the Russians between 1875 and 1905, being used by them as a penal colony. After the Russo-Japanese War, the Japanese, by the Treaty of Portsmouth (1905), obtained the part of the island south of 50° N., the section north of that point being assigned to Russia. The Japanese, however, did not give up the Russian section until 1925. This northern part, with an area of about 15,700 square miles, has been developing under the Five-Year Plan. Modern machinery is being used in the extraction of coal and crude petroleum, motor boats have replaced fishing smacks, refrigeration is used to preserve the fish, and lumbering and ship building industries have been started. Agriculture has been collectivized and is being mechanized. Schools, hospitals, and modern housing have been introduced. The Nivkhi (Gilyaks), and other aboriginal inhabitants of Sakhalin, formerly very backward and believed to be dying out, are increasing in numbers. The population of the territory as a whole, which in 1926 was about 12,000, increased 10-fold between 1925 and 1936. Plane service connects the Soviet part of Sakhalin with Khabarovsk on the mainland.

The southern part of Sakhalin continued in Japanese possession under the name of Karafuto until August 1945, when it was captured by the Red armies. The Soviet government, it was understood, had never given up its claim to southern Sakhalin despite the Treaty of Portsmouth. On Sept. 3, 1945, Premier Joseph Stalin announced that south Sakhalin, and the Kurile Islands would be taken over by the Soviet Union. Under Soviet control, he said, they could no longer be used as a springboard for Japanese aggression against the USSR, or as a means of blocking Soviet Pacific Ocean approaches. On September 4 the New York *Times* reported that the United States had "tacitly agreed" to Soviet possession of southern Sakhalin and the Kuriles. The area of the former Karafuto is 13,935 square miles. In 1938 its population was 339,357, mainly Japanese, with 7,628 Koreans and 338 Europeans. The chief city is Toyohara (pop. 37,922). Although large areas of the land are adapted to agriculture and pasturage, under the Japanese, fishing had remained the most important industry, although the lumber and wood pulp, petroleum and coal of Karafuto had also figured significantly in Japan's war effort. In 1939 Karafuto produced 3,869,000 barrels of petroleum. Alluvial gold is also found. Railways, with a total length of 404 miles, connect the main centers. Industries, particularly fish canneries and pulp mills, and the leading ports—Odomari (Otomari) and Honto, as well as Toyohara, the capital—are situated toward the southern end of the territory.

SALT. According to the United States Bureau of Mines the total domestic salt production in 1944 was 15,717,171 short tons valued at $45,989,264, as compared with 15,214,152 tons valued at $43,878,266 in 1943, representing an increase of 3 per cent in quantity and 5 per cent in value compared with totals in 1943. Compared with 1943, rock salt output in 1944 increased 6 per cent and brine 5 per cent, but the output of evaporated salt declined 1 per cent. The chief factors contributing to the increases were expanded chemical uses and augmented production of synthetic rubber.

In 1944, salt was produced in 81 plants of 53 companies operating in 13 states and Puerto Rico. As in years past, Michigan led in total salt produced, followed by New York, Ohio, Louisiana, Texas, Kansas, and California. The Midwest section (Kansas, Michigan, and Ohio) produced 51 per cent of the national total in 1944. Michigan and New York together produced 46 per cent of the 1944 output, Michigan leading in evaporated salt, and New York in rock salt.

SALTEN, Felix (the pseudonym of FELIX SALZMANN), Austrian novelist, essayist, and play-

wright: b. Budapest, Hungary, Nov. 6, 1869; d. Zurich, Switzerland, Oct. 8, 1945. Internationally known for his animal stories, Felix Salten was the author of *Bambi* (German ed., 1923), the sensitive and poetic story of a fawn who grew up to be a princely deer.

Born of Jewish parents, Salten was brought to Vienna as a child and educated at the gymnasium in that city. For a time he served as dramatic critic on the Vienna *Neue Freie Presse*, and in 1927 his translation of *Abie's Irish Rose* was produced with great success in Vienna by Max Reinhardt. When Hitler invaded Austria, Salten fled to Switzerland. In 1942 Walt Disney released a full-length color cartoon film based on *Bambi*. Among Salten's other books are: *Die Kleine Veronika* (1903); *Neue Menschen auf Alter Erde* (1925); *Fünfzehn Hasen* (1929); *Freunde aus Aller Welt* (1930); *Gute Gesellschaft* (1931); *Louise von Koburg* (1932); *Dieses Kleines Mädchen* (1934); *Florian das Pferd des Kaisers* (1935); *Kaisertochter* (1936); and *Die Jugend des Eichhörnchens Perrg* (1938). English translations include *Bambi; Hound of Florence; Fifteen Rabbits; Samson and Delilah; City Jungle; Florian; Perri; Bambi's Children; Renni the Rescuer; Good Comrades;* and *Forest World.*

SALVADOR (EL SALVADOR). The smallest of the Central American republics and the second smallest Latin American republic, Salvador has an area of 13,176 square miles. Its population of 1,896,168 (1943 est.) makes it the second most densely inhabited Latin American state, with an average of more than 140 per square mile. More than three fifths of the population is rural. Mestizos constitute 80 per cent and Indians 19 per cent of the population. Important cities are San Salvador, the capital (1945 est., 105,193), Santa Ana (90,618), San Miguel (48,643), Zacatecoluca (29,474), Santa Tecla (Neuva San Salvador, 35,587), Ahuachapán (33,652), and San Vicente (31,362). Salvador is bounded on the west by Guatemala, on the north and east by Honduras, and on the south by the Pacific Ocean; it is the only Central American country without a Caribbean coastline. Much of the country is a volcanic highland but in no case do the mountains reach 8,000 feet in height. Fertile intermont basins have an average elevation of about 2,000 feet. From the second quarter of the 16th century until independence from Spain was attained in 1821, Salvador was part of the captaincy general of Guatemala. After a futile attempt to annex itself to the United States, it was a province of the Central American confederation from 1824 to 1839, following which it became an independent state. A constitution drafted in 1939 under the domination of the dictator, Maximiliano Hernández Martínez, governed the republic until after the resignation of Martínez under pressure in 1944, whereupon a modified form of the constitution of 1886 was restored. A convention in 1945 worked on a new constitution, not completed, however, by September 1945. Salvador is divided into 14 territorial departments.

Religion and Education.—The predominant religion is Roman Catholicism though religious freedom has prevailed for many years. An archbishop is located at San Salvador and bishops at San Miguel and Santa Ana.

Education is free and theoretically compulsory. The latest general figures for literacy are only 21.2 per cent, however; this has probably been improved, as 1942 marriage statistics for 12,932 persons showed 47 per cent of the men and 36 per cent of the women as literate. The latest education statistics showed 1,330 primary schools with 89,792 pupils, 58 intermediate schools with 3,309 pupils, and one university with 506 enrolled; there are also commercial and normal schools.

Communications.—Total railway mileage is 385, operated by two lines, the more important of which is the International Railways of Central America (IRCA) linking Salvador and Guatemala. Passengers carried in 1941 totaled almost 900,000. Salvador has 3,709 miles of highways, not all of which are improved, however; all-weather roads now total 1,377.7 miles in length. Systematic highway improvement dates from 1926 with the organization of a national Bureau of Roads. The major project in recent years has been the completion of the Pan American Highway through Salvador; its length in that republic is 193.2 miles. An excellent highway connects San Salvador and the closest port, La Libertad. Airplane service is furnished principally by Pan American Airways. Vehicle registrations in 1943 included 2,700 passenger cars, 676 buses, and 698 trucks. The 4,411 telephones are connected by more than 3,500 miles of line; 257 telegraph offices have been served by 2,412 miles of line. Radio statistics for 1943 showed four broadcasting stations and approximately 11,000 receiving sets. Post offices number 223.

Production.—Salvador is primarily an agricultural country and its land is utilized more fully than that of any other Central American republic, approximately four fifths of it being under cultivation. Coffee is much the most important crop, Salvador being exceeded in coffee exports only by Brazil and Colombia. Important quantities of corn, sugar, beans, rice, cotton, and henequén are grown for local consumption. The approximately 270,000 acres devoted to coffee growing are exceeded by the acreage in corn though the latter is not an important cash crop. Fruits grown in Salvador include pineapples, papayas, bananas, avocados, oranges, and others; the lack of an extensive warm coastal plain has prevented Salvador from becoming an important banana-producing region, however. Forest products include mahogany, cedar, and walnut, small amounts of rubber, and the important (and misnamed) balsam of Peru, a medicinal gum. The only developed mineral resources are gold and silver, although presence of coal, iron, zinc, copper, lead, and others has been reported. In general, minerals exist in small quantities and in areas difficult of access. Gold production has fluctuated widely, the recent peak (1940) being a value of $1,766,111. Industrial production is dependent primarily upon the agricultural products of the country. It includes sugar refining, alcohol distillation, tanning, tobacco processing, textile and clothes manufactures, matches, soap, cement and cement blocks, henequén bags for coffee. The government for some years has attempted to encourage industrialization (e.g., by the requirement that coffee be shipped only in bags of national manufacture) but important unfavorable factors have included the lack of raw materials, skilled labor, and fuel, and the small domestic market.

Finances.—Though customs receipts have been falling steadily since 1936–37, they still form the major item of revenues, representing almost one third. National defense has been the major item of government expenditures. The year 1943 showed a treasury surplus of $1,100,000; the

debt in that year was 51,300,000 colones (colón = 40 cents), C45,600,000 of which was external debt. Internal debt by 1943 had doubled from that of 1939 and external debt was about one third greater. The government in 1944 attempted to work out a debt refunding plan but with only partial success. Salvador has no system of exchange control but foreign exchange was reported at the end of 1944 as adequate to meet commercial needs; almost all exchange is in dollars, a small amount in sterling.

Foreign Trade.—Exports in 1943 totaled $22,530,000 or $11.98 per capita; imports for the same year were $11,943,000 or $6.35 per capita. Diversification of agriculture has lowered the percentage of coffee in total exports, although it is still far in the lead; the percentage in 1943 was 79 but in 1938 it was 87. Salvador's basic quota for coffee has been fixed at 600,000 bags of 60 kilograms. This figure was increased for the 1944–45 crops to 845,838 bags. Export of coffee to the United States in the 1943–44 crop year was 762,182 bags. The estimate of exportable coffee from the 1944–45 crop was 920,000 bags (as against 1,090,000 bags in 1943–44). Actual exports from Oct. 1, 1944 to June 30, 1945 were 767,757 bags. Salvador's coffee has always been a quality product and has commanded a favorable price in foreign markets, most of it going to the United States. Total exports to the United States in 1943 were valued at $14,492,000 and total imports from the United States at $7,013,000. The share of United States trade substantially increased during the war. The government early in 1945 extended its commercial *modus vivendi* with Mexico to Oct. 3, 1945. Foreign trade, especially in the export of coffee, was seriously interrupted early in 1945 by the rail embargo imposed by Guatemala during the period of strained relations; this led to the temporary accumulation of more than a million bags of export coffee.

Principal Events.—Salvador's history during the first three fourths of 1945 was much less turbulent than it had been in 1944. The harsh and repressive government headed by Col. Osmín Aguirre y Salinas, which came into power by revolution Oct. 20, 1944, continued in office at the beginning of 1945, though maintaining that it would hold elections as scheduled in January. By January 11 two of the three presidential candidates, Napoleón Viera Altamirano and Gen. Antonio Claramount Lucero, had withdrawn in the face of the obvious support of Gen. Salvador Castañeda Castro by the Aguirre regime. The elections, beginning Jan. 14, 1945, resulted in a naturally sweeping victory for the sole remaining candidate, the official results being announced as follows: Castañeda, 312,754; Aguirre (write-in), 2,030; all other former candidates, 1,050. The exiled oppositionist civilian leader, Dr. Arturo Romero, called upon "all American democratic governments" to refuse recognition to Castañeda, whose government, he charged, was "born by the imposition of bayonets." Diplomatic recognition, which had generally been withheld from the Aguirre government, began, however, with action by the United States, Great Britain, Bolivia, and other states on February 19; other governments withheld their recognition until the change of administration on March 1. United States Ambassador John Simmons presented his credentials to Provisional President Aguirre on February 22. The regular session of the National Assembly opened February 15. Gen. Castañeda and Vice President Manuel Adriano Villanova were sworn in March 1. The government-in-exile established after the Aguirre coup by Supreme Court Justice Molina, first at Guatemala City and then at Mexico City, declared on March 4 that it had ceased to exist as of February 28. Many exiles, including ex-Provisional President Menéndez, began returning to Salvador soon after Castañeda's inauguration. The early nonrecognition of Salvador raised the question of its admittance to the Mexico City conference in late February but this was solved by the reception of "observers" until March 1 and their subsequent accrediting as delegates. The foreign minister on May 22 announced the imminent establishment of relations with the USSR. A serious impasse existed between Salvador and Guatemala during most of the Aguirre regime because of his charge that Guatemala harbored anti-Aguirre exiles. After the demonstration of apparently more democratic tendencies by Castañeda, however, he and President Arévalo of Guatemala entered into a series of discussions in the spring of 1945 looking to the union of the two countries as a forerunner to Central American union. Salvador and Guatemala concluded an economic-financial protocol June 19, 1945, recommending reciprocal elimination of customs except on coffee, sugar, tobacco, and products subject to monopolistic control; other proposed steps taken toward union covered especially customs, finance, and transportation. The executive branch of Salvador's government was reorganized by decree of February 28 to include five ministries. A plot allegedly headed by Aguirre culminated in an attempted revolution June 10, 1945, but some 205 military officers were summarily exiled. A plane that dropped bombs near a police barracks caused no damage. Castañeda faced serious potential discontent in July because of food shortages and consequent pillaging. The government thereupon seized large quantities of staple food stocks and put them on public sale at low prices. A second alleged army plot was nipped July 24 and Aguirre, the asserted leader, was held for court-martial.

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SALVATION ARMY, The. A religious body operating in 98 territories of the world, preaching the gospel of Christ in 102 languages, and ministering in practical ways to emergency needs of humans. Its followers are estimated to number 5,000,000 persons, led by 27,000 trained officers.

The founder was William Booth, a Methodist minister in London, who in 1864 defied church tradition of the day by holding meetings for the poor in the worst slums of the city. When converts were refused membership in churches, Booth banded them in an organization called the Christian Mission. In 1878 the name was changed to The Salvation Army; uniforms for men and women were inaugurated; and a semi-military system of leadership adopted.

From its earliest days The Salvation Army recognized that acute material needs often temporarily stood in the way of spiritual benefit. As the army grew it continued to meet emergency human needs: a vast global network of places to worship arose, accompanied by a twin network of rehabilitation services for social casualties; industrial homes where men could rebuild their character; hospitals for unmarried mothers; free or low-cost lodging houses; nurseries for working mothers; fresh air camps; boys' clubs;

welfare work with prisoners which proved so valuable in America that The Salvation Army is a semiofficial adjunct of the penal parole system.

A small group of missionaries established the army in the United States in 1880. One of its unique features has been its public expression of joyous Christianity through street corner musical services and personal testimonies, followed by invitations to indoor meetings. In country after country this method of carrying the gospel to the populace has been viewed first with disdain, then tolerance, then affection and generous financial support as the constant devotion of its workers and strict business integrity of the organization became known.

In the First World War, The Salvation Army won imperishable laurels in France when "lassies" braved the misery and risk of front line fighting to carry cheer and refreshment to the soldiers.

In the Second World War the army merged its global facilities to meet the challenge of global warfare. Its first mobile canteen—to provide hot food to Britain's unemployed hungry in 1927—grew to a fleet of 1,000 mobile canteens to keep pace with mobile warfare, and to reach the forgotten men at outposts on the home front. More than 2,000 rest and recreation centers were established for servicemen and women, staffed by Salvation Army officers. In addition to its mobiles and Red Shield service clubs, The Salvation Army activated the interfaith effort which resulted in the United Service Organizations (USO) and, as one of its six member agencies, operates many USO units.

The year 1945 was marked in the United States by a national spiritual campaign and intensification of youth activities. War service increased, with emphasis on aiding returned veterans to adjust to civilian life and on giving spiritual guidance for the bereaved and wounded. The co-ordination of the work was directed by Commissioner Donald McMillan, National Secretary, at National Headquarters, 120–130 West 14th Street, New York 11, N.Y.

BARBARA TAYLOR,
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SAMOAN ISLANDS. A Polynesian group in the South Pacific, 4,150 miles southwest of San Francisco; total area, 1,209 square miles, pop. (1941–44) 82,458. Politically, the islands east of long. 171° W. constitute American Samoa, and west of that line lies Western Samoa, a League of Nations mandate administered by New Zealand.

American Samoa.—This United States possession has a land and water area of 76 square miles, and population (1941) of 14,458. It comprises Tutuila (40.2 square miles), the Manua Islands (Tau, Ofu, and Ollesega), and Rose and Swain's islands. In 1899 the United States acquired rights over all the islands except Swain's, and over the latter in 1925. Pago Pago, on Tutuila, situated in a fine harbor, is the seat of administration and a naval base. The commandant of the naval base exercises the governorship; he is assisted by the fono, a native advisory body. Local government is in the hands of native chiefs. Elementary education was available in 1943 in 32 public and 4 missionary schools, with enrollments of 2,315 and 500 pupils respectively. Alligator pears, bananas, breadfruit, coconuts, limes, mangoes, oranges, pineapples and yams are grown. Copra is the principal export. Imports in 1940–41 were valued at $263,703, and exports at $93,839. There are 34 miles of highways.

Western Samoa.—This mandated territory has a land area of 1,133 square miles, and a population (1944) of 68,000, of whom 300 are white. It comprises the islands of Savaii (703 square miles) and Upolu (with dependent islets, 430 square miles). A former German possession, on Dec. 17, 1920 it was assigned to New Zealand as a League of Nations mandate. Apia, on Upolu, is the capital and chief port. The administrator (A. C. Turnbull appointed Feb. 24, 1943) is assisted by a Legislative Council of 12 members (6 officials, 2 elected European unofficials, and 4 nominated native Samoans). Prime Minister Peter Fraser of New Zealand visited Western Samoa in January 1945; native spokesmen asked that Samoans be given a greater share of self-government and responsibility (similar to the system prevailing in Fiji and Tonga), that road communications be improved, and that facilities for education be increased. Government revenue in 1942–43 amounted to £NZ212,996, and expenditure was £NZ203,492. Besides 13,258 pupils at 101 government schools in 1942, others attended mission schools. Coconuts, cacao, bananas, and rubber are cultivated on a commercial scale; a record output in 1945 was anticipated. Exports in 1943 were valued at £NZ278,213, and imports amounted to £NZ605,911. Highways totaled 180 miles (30 miles surfaced). During 1942–44 the United States maintained a large airbase on Upolu Island.

SAN FRANCISCO CONFERENCE. See PAN AMERICAN AFFAIRS; UNITED NATIONS CONFERENCE; WORLD POLITICS.

SAN MARINO. Overlooking Rimini on the Adriatic Sea, San Marino is the world's smallest independent republic, with an area of only 38 square miles, and (according to its own claim) Europe's oldest state, having been founded in the 4th century. It is entirely surrounded by Italian territory, its integrity being pledged, however, by Italy in a treaty concluded in 1897 and renewed in 1939. Its population in September 1939 was 14,545. The capital town, San Marino (population about 2,000), is built on the slope of Mount Titano, the mountain constituting a large proportion of the territory of the republic. Its defenses, long believed impregnable, have made it the refuge for some famous fugitives. Legislative power is exercised by a popularly elected council of 60, two of whom are appointed to act as regents for six-month periods. The regents exercise executive power, being assisted by various nominated congresses—the State Economic Congress, the Congress of Studies, the Military Congress, etc. There are several elementary schools, and a high school, the diplomas of which are recognized by the Italian universities. The republic falls within two Italian dioceses. San Marino has its own small coins, but uses Italian and Vatican City currency in the higher denominations. Its budget for 1939–40 was estimated to balance at 6,009,919 lire. The republic's main exports are building stone, wine, and cattle. Its postage stamps are of especial interest to philatelists. The principal industries are cereal growing, the production of cheese, oil and wine, cattle raising, stone cutting, and the manufacture of white and hydraulic lime. An electric railway 20 miles long connects San Marino and Rimini.

Elections held on March 14, 1945, resulted in

a Leftist victory for the Popular Front, Communists and Socialists each winning 18 seats out of the 60 seats in Parliament; Republican Democrats winning 4; and various Rightists winning the remaining 20. On August 1 it was reported that San Marino had qualified for aid from the United Nations Relief and Rehabilitation Administration.

SAND AND GRAVEL. The domestic production of sand and gravel declined 17 per cent in 1944, according to the United States Bureau of Mines. Industrial sands used in war production reached a new record, but building and paving materials which constitute the bulk of the sand and gravel tonnage were caught in a declining period following the height of war construction. The total output of sand and gravel was 194,783,000 short tons valued at $125,164,000 in 1944 compared with 234,064,000 tons valued at $152,793,000 in 1943. Approximately 77 per cent of the output was supplied by commercial plants and 23 per cent by contractors and construction or highway maintenance crews employed by federal, state, county, and municipal governments.

SANFORD, Harold. See MUSIC—*Necrology.*

SANTO DOMINGO. See DOMINICAN REPUBLIC.

SAO TOME. See PORTUGUESE COLONIAL EMPIRE.

SARAWAK. See BORNEO.

SARK. See CHANNEL ISLANDS.

SASKATCHEWAN. The central prairie province of Canada, lying between Manitoba and Alberta and bounded on the south by North Dakota and Montana, is composed of the old Northwest Territorial Districts of Assiniboia East, a part of Assiniboia West, and the eastern portions of Athabaska. It extends along the border of the United States for a distance of 393 miles. Its northern boundary is 227 miles and it is 761 miles from north to south. Created a province in 1905, it has an area of 251,700 square miles, of which 8,784,000 acres are under water. Population, which is about two thirds rural, was 895,992 in 1941.

The government is vested in a lieutenant governor and a Legislative Assembly of 55 members elected for five years. The last provincial election was in June 1944, when the first C.C.F. government in Canada was elected to power. The present membership is made up of 47 Co-operative Commonwealth Federation (C.C.F.); five Liberal, and three armed forces' members. The province is represented in the Dominion Parliament by six senators and 21 members of the House of Commons.

An outstanding character of Saskatchewan soils is the large proportion of vegetable matter and wealth in nitrogen content; this and the climate account for its production of the famous hard wheat and make it one of the most productive grain areas of the world. Winters are bright and cold but the atmosphere is dry and the summers are warm. There are over 2,200 hours of sunshine in a year.

One of Canada's richest provinces in natural resources, northern districts are abundantly watered by lakes and rivers and aerial surveys have explored and opened up new timber wealth. Rich in mineral resources, gold discoveries have been made at Goldfields in the Lake Athabaska region of the northwest and in the eastern portion of the province on the Manitoba-Saskatchewan border is located the famous Flin Flon copper-gold-zinc deposit.

Estimated revenues for the fiscal year 1945–46 were $36,243,335 and expenditures $36,212,-143. Net debt in 1945 was $170,030,417.

Gross value of agricultural products in Saskatchewan in 1944 amounted to $624,608,000, made up of fields crops, $444,281,000; farm animals, $106,334,000; wool, $614,000; milk production, $36,194,000; fruits and vegetables, $1,888,000; poultry and eggs, $32,393,000; fur farming, $650,000; clover and grass seed, $1,539,-000; honey and wax, $715,000.

Besides 966 privately-owned industrial establishments whose gross value of production in 1942 totaled $120,257,000 a number of provincial government industries were set up in 1945 at a cost of over $1,000,000. Among them are two fish filleting plants, a woolen mill, a leather products factory, a brick plant, and a fur marketing service. Two private power companies have also been acquired, while the provincial government has announced that it will operate bus lines in the province.

Railway mileage in Saskatchewan totals 8,780, and there are 203,500 miles of roads, including over 5,000 miles of surfaced roads.

Education is provincially controlled. In 1944 there were 5,202 school districts with 179,372 students enrolled, of which 32,511 were in the high school grades. There is a university at Saskatoon.

In public health, free treatment of venereal disease in government clinics has been extended to include free penicillin therapy. Penicillin for venereal disease is also supplied free to private physicians. Old age and blind pensioners, and mothers in receipt of widow's pensions and their dependents, receive free medical treatment. Care is also provided free for inmates of mental hospitals. Cancer and tuberculosis treatment is free also.

Principal cities are Regina, the capital (pop. 58,245); Saskatoon, (43,027); Moose Jaw (20,-753); Prince Albert (12,508); Weyburn (6,179); and Swift Current (5,594).

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SAUDI ARABIA. See ARABIA.

SCHOOLS. See COLLEGES AND UNIVERSITIES; EDUCATION, REVIEW OF.

SCHUSCHNIGG, Kurt von, Austrian statesman: b. Dec. 14, 1897. Austria's chancellor from 1934 until he was taken into custody by the Germans in March 1938, Dr. Schuschnigg was freed by Allied forces near the Brenner Pass in early May 1945. With Leon Blum, former French premier, and Rev. Martin Niemoeller, German anti-Nazi pastor, he had been imprisoned at Itter Castle, Austria. In the First World War, he fought on the Italian front, and in 1917, was taken prisoner. After the war, he took his law degree at the University of Innsbruck. From 1932 to 1934, as minister of justice under Dr. Engelbert Dollfuss, he supported the Dollfuss regime in its fight against socialism. After Dollfuss' assassination in July of the latter year, he became Austria's chancellor. The English translation of Dr. Schuschnigg's autobiography, *My Austria,* was published in 1938.

SCHWELLENBACH, Lewis Baxter, United States Cabinet officer: b. Superior, Wis., Sept. 20, 1894. On May 23, 1945, Federal Judge Schwellenbach was appointed secretary of labor in the Truman Cabinet to succeed Frances Perkins. He is a close friend of President Truman, and was inti-

mately associated with the late President Franklin D. Roosevelt. During his years as United States senator from the State of Washington (1935–40), he was frequently called to the White House for conference with the chief executive. Outstanding among Schwellenbach's activities in Congress was his unrelenting campaign as member of the Foreign Relations Committee to stop the sale of scrap iron to Japan; from 1937 on, he sponsored legislation to prevent shipments being made, and often carried his fight to the Senate floor and to the nation at large. In December 1940, he resigned as senator to become United States district judge for the Eastern District of the State of Washington.

A graduate of the University of Washington Law School in 1917, Mr. Schwellenbach became president of the board of regents of the university, 1933–34. In September 1944, he was appointed dean of the Gonzaga University Law School in Spokane. Admitted to the Washington bar in 1919, he was for several years member of a law firm in Seattle; and from 1931–35, practiced alone. In 1938, he was a delegate to the Interparliamentary Union, the Hague.

SCIENCE, American Society for Advancement of. See AMERICAN SOCIETY FOR THE ADVANCEMENT OF SCIENCE.

SCIENTIFIC RESEARCH AND DEVELOPMENT, Office of. See OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT.

SCOTLAND. A kingdom occupying the northern part of the main island of Great Britain. Politically, it is part of the United Kingdom of Great Britain and Northern Ireland. Scotland is represented in the House of Lords by 16 peers, elected for the duration of Parliament; and in the House of Commons by 74 elected members (3 of them representing the universities). For area, population, education, etc., see GREAT BRITAIN.

During the Second World War, after German occupation of France and the Low Countries had necessitated the closing of British south and east coast ports to ocean-going shipping, two new ports were built on the west coast of Scotland. Port Number One is in the Gare Loch, a north arm of the Clyde, and Port Number Two further south at Cairn Ryan, on Loch Ryan, in Wigtownshire. The ports are served by 50 miles of new railroad track, and each covers more than 1.5 miles of waterfront with deep locks; Gare Loch has six and Cairn Ryan five 500-foot long deepwater berths, with 35 feet of water at low tide. Large numbers of United States personnel and a great tonnage of American supplies were landed at the ports.

SCRUB TYPHUS FEVER. See MEDICINE.

SCULPTURE. See PAINTING AND SCULPTURE.

SEABROOK, William Buehler, American author and explorer: b. Westminster, Md., Feb. 22, 1886; committed suicide, Rhinebeck, N.Y., Sept. 20, 1945. William Seabrook was best known for his popular accounts of personal adventures and experiences. His travels took him among the whirling dervishes and Zezidee devil worshippers in Arabia, the voodoo worshippers in Haiti, and cannibals in West Africa. Educated at Mercersburg (Pa.) Academy and Roanoke College, Seabrook received a Ph.B. degree and an M.A. degree from Newberry (S.C.) College in 1905 and 1906 respectively. During 1906 he worked as a reporter and city editor of the Augusta (Ga.) *Chronicle*, and the next two years he tramped through Europe as a free lance writer, taking time out to study philosophy at the University of Geneva, Switzerland, in 1908. He returned to Georgia in 1909 as a reporter on the Atlanta *Journal*, later became a partner in the Lewis-Seabrook Advertising Agency in Atlanta (1911–15), and enlisted in the French Army in 1915. He was awarded the Croix de Guerre after having been gassed at Verdun. In 1917 he became a reporter on the New York *Times* and later a feature writer for newspaper syndicates. After 1924 he engaged in travel, exploration and writing. His works include *Adventures in Arabia* (1927); *The Magic Island* (1929); *Jungle Ways* (1931); *Air Adventure* (1933); *The White Monk of Timbuctoo* (1934); *Asylum* (1935); *These Foreigners* (1938); *Witchcraft* (1940); and *No Hiding Place* (1942), an autobiography.

SECOND WORLD WAR. See WORLD WAR, SECOND.

SECRET SERVICE, United States. The year's biggest job for Secret Service agents of the Treasury Department was the mapping and execution of security plans to protect the late President Roosevelt at the "Big Three" conference at Yalta and President Truman in the historic Potsdam meeting. Agents detailed with the president at the United Nations Conference in San Francisco also safeguarded the signed Charter until its delivery to the State Department June 28. Many distinguished visitors were also protected by the Secret Service, including Prime Minister Winston Churchill, the Earl of Athlone (governor general of Canada), Sergio Osmeña, president of the Philippines, Madame Chiang Kai-shek of China, Princess Juliana of The Netherlands, and Norway's Crown Prince Olaf, Princess Martha and their children.

The uniformed force of the Secret Service protected nearly 233 billion dollars in money, stamps, bonds and other government securities in transit, and another 285 billion dollars in production and storage in Washington and Chicago.

Public losses through acceptance of counterfeits were low, totaling only $28,852 out of a total of $68,325 in bogus bills and coins seized during the year. There were 58 persons arrested on counterfeiting charges.

Forgeries of government checks and war bonds comprised most of the enforcement work of the service. Unusual cases involved the seizure of manufacturing plants for the production of counterfeit treasury checks and the captures were made before the counterfeiters succeeded in defrauding many merchants. Some 16,380 forged checks were received for investigation and there were 1,722 persons arrested for stealing and forging government checks, including 706, or about 41 per cent, under 21 years of age. The Secret Service continued its "Know Your Endorser" campaign to prevent forgeries by minors by warning money handlers to use extreme care in cashing checks for juveniles. There were 31 juvenile forgers arrested one case in New York City alone.

Agents made 241 arrests of persons who forged or altered war bonds and a total of 2,587 such bonds were received for investigation.

Convictions for check forgery in the fiscal year 1945 totaled 1,594 as against 1,480 in 1944. Bond forgers convicted totaled 192 in 1945 as against 68 in 1944. Convictions for currency counterfeiting numbered 42 in 1945 and 54 in 1944. Of all types of cases brought to trial in 1945, convictions were obtained in 97.8 per cent as compared with 97.9 per cent in 1944. Fines in criminal cases in 1945 totaled

$126,713 and imprisonments about 2,178 years. Additional sentences aggregating about 2,338 years were suspended or probated. The Secret Service disposed of 21,493 criminal investigations during the year.

The Secret Service Crime Prevention Program, which for several years has substantially reduced the financial losses suffered by the public, was actively continued in the "Know Your Money" and "Know Your Endorsers" campaigns in accordance with the Treasury Department's effort to stimulate public respect for federal law and to secure the public's co-operative assistance in preventing crime by pointing to the stake which the honest citizen has in the effort.

FRANK J. WILSON,
Chief, U.S. Secret Service.

SECURITIES AND EXCHANGE COMMISSION. At June 30, 1945, the members of the commission were: Chairman Ganson Purcell and commissioners Robert E. Healy, Sumner T. Pike, Robert K. McConnaughey, and James J. Caffrey. During the fiscal year ended June 30, 1945, the commission's activities under the acts administered by it were as follows:

Securities Act of 1933.—Registration of securities for public distribution aggregated $3,280,589,071; this was the highest volume of annual registrations since 1937, and brought to $28,625,981,071 the total amount of securities registered under the act. Registration statements under examination by the commission during the year numbered 446 (including 46 pending at the beginning of the period), of which 83 were pending at the end of the year. The commission's examination concerns the adequacy and accuracy of the information required to be disclosed for the protection of investors. The act does not empower the commission to approve or otherwise pass upon the merits of security offerings; it provides, instead, for the disclosure of information upon which investors may appraise the merits of securities being offered and determine for themselves whether to purchase them. Accordingly, registration is not to be taken as a guarantee against loss.

The commission's regulations governing exemptions from registration were modified during the year to give effect to an amendment to the act which increased from $100,000 to $300,000 the amount of securities which could be publicly offered for sale without registration, under conditions prescribed by the commission.

Enforcement activities against securities violations are discussed hereinafter.

Securities Exchange Act of 1934.—At June 30, 1945, 3,675 separate security issues of 2,185 issuing companies were listed and registered upon the 19 national securities exchanges. Important annual and other periodic and special reports are filed by these companies with the exchanges and the commission; these are subjected to examination by the commission as to the adequacy and accuracy of the information required to be disclosed for the protection of investors. Included are financial and other operating information; descriptions of business and properties; management and other contracts; executives' salaries; and security holdings and transactions by directors, officers, and persons holding more than 10 per cent of the companies' securities. Holders of listed securities are afforded additional protection through requirements of the act governing the solicitation of proxies and designed to provide disclosure of information which will enable them to exercise an informed judgment in voting upon the affairs of their companies.

The commission's other activities under this act had to do with its surveillance of securities markets (both exchange and over-the-counter). This is in accordance with provisions of the act designed to protect the interests of investors and the public through maintenance of just and equitable principles of trade, by prohibiting misrepresentation, deceit, market manipulation and other fraudulent practices in the purchase and sale of securities, and by affording various sanctions against law violators. The latter includes administrative actions to suspend or revoke a broker's or dealer's membership in a national securities exchange or registered association of dealers or to revoke his registration with the commission (thus barring his continued conduct of a securities business in interstate commerce), as well as civil actions to enjoin securities violations and criminal prosecutions for fraudulent acts or practices. Persons or firms against whom administrative action was taken numbered 16; other prosecutions are discussed under "Enforcement Activities."

Public Utility Holding Company Act of 1935.—The commission's activities under this act during the year related primarily to (1) the supervision of the issuance and sale of securities and the sale and acquisition of securities and physical properties by registered holding companies and their operating subsidiaries; and (2) furtherance of the act's objectives of integration of utility properties into economically integrated and co-ordinated systems and the simplification of corporate and system structures and equitable redistribution of voting power among the security holders of such companies.

The issuance and sale of securities by such companies in the aggregate amount of $1,308,641,520 were passed upon by the commission as meeting those standards prescribed in the act by Congress as necessary for the protection of investors, consumers and the public. Strengthening of the financial condition of these companies is basic to this protection, and is accomplished through such measures as debt reductions, increased depreciation accruals, and elimination of write-ups and other inflationary items from balance sheets. Other measures provide for improved mortgage indenture provisions; maintenance of competition in the sale of securities, and of reasonable fees and commissions.

Continued and substantial progress was made during the year in the field of integration and simplification. At the year-end, properties aggregating approximately $4,182,000,000 had been divested from holding company systems pursuant to commission orders directing compliance with these objectives of the act or in anticipation thereof. Other properties, the subject of divestiture orders, aggregated $3,500,000,000. Holding companies with total system assets of $3,850,000,000 at end of the year were subject to liquidation or dissolution orders. In the field of corporate simplification and redistribution of voting power, 146 plans had been filed by the end of the year by holding companies and their subsidiaries to accomplish these objectives; 56 had been approved by the commission in whole or in part; 26 were withdrawn or denied, and 64 were pending. These plans, which in many cases result in needed rehabilitation of the subject companies, included proposals for mergers and consolidations, as well as recapitalizations and reorganizations involving the simplification of corporate structures and readjustment of the interests of the several classes

of security holders and of their voting rights in light of existing equities.

Trust Indenture Act of 1939.—Debt securities issued under indentures qualified during the year as meeting the standards of this act aggregated $1,791,190,320, of which $1,736,016,400 also were registered under the Securities Act. The Trust Indenture Act prescribes standards designed for the protection of investors which must be included in indentures, and requires that the indenture trustee be disinterested so as to assure that he will have no conflicting interests when acting in behalf of security holders.

Investment Company Act of 1940.—The commission's principal activities under this act consisted of (1) the review and examination of annual and other reports of registered investment companies, as well as their selling literature and proxy soliciting statements, to determine the adequacy and accuracy of the information required to be disclosed for the protection of investors; and (2) consideration of applications for approval or exemption of specific transactions or activities not otherwise permitted, and observance of activities to assure adherence to those standards of conduct prescribed in the act as additional protection. At the year-end, 366 companies with aggregate assets exceeding $3,250,000,000 were registered with the commission.

Investment Advisers Act of 1940.—Surveillance of the activities of investment advisers (of whom 783 were registered at the year-end), to the end that investors will be protected through establishment and maintenance of higher standards of conduct and disqualification or prosecution of those who fail to observe such standards, constituted the commission's primary activity under this act during the year.

Bankruptcy Act, Chapter X.—In the exercise of its role as independent adviser to federal courts in corporate reorganizations under Chaper X, the commission participated in 116 proceedings for the reorganization of 141 debtor companies during the year. As part of its advisory service, 53 plans of reorganization were reviewed during the year and the commission's views as to their fairness and feasibility presented to the courts. In three of the larger cases, advisory reports were prepared for consideration by the courts and security holders.

Enforcement Activities.—During the year, the commission filed 13 civil actions in federal courts seeking to enjoin securities transactions or activities in connection therewith which were alleged to be violative of law and to constitute fraud or deceit upon investors. In 13 of these and similar actions pending at the beginning of the year, 32 companies and persons were permanently enjoined from continuing the acts and practices complained of. Indictments were returned in 23 cases during the year charging 87 companies and individuals with fraudulent activities in the purchase and sale of securities; 35 persons were convicted in 17 such cases during the year, bringing the total of persons so convicted to 1,135.

GANSON PURCELL,
Chairman, Securities and Exchange Commission.

SELANGOR. See BRITISH MALAYA.

SELECTIVE SERVICE. By midsummer of 1944, the war on both fronts had taken a turn favorable to the United Nations. This was accompanied by a gradual decline in the size of calls on the Selective Service System for men to be delivered to the army and navy for induction. This downward trend continued throughout the remainder of the year, as indicated by the following figures showing the total of calls by the armed forces for each month from July through December, 1944:

July	110,950	October	87,050
August	104,350	November	84,050
September	81,050	December	82,075

Preparations for the "knock-out" blow at both Germany and Japan brought a slight increase in calls during the early months of 1945. Following are the figures:

January	101,283	May	129,470
February	126,720	June	128,920
March	148,720	July	101,200
April	143,220		

Immediately after the capitulation of Japan, the president ordered a sharp reduction in the number of inductions from the previous figure of about 90,000 a month to approximately 50,000 monthly. Further, in compliance with a presidential order, instructions were issued restricting calls to men in the 18 through 25 age group other than volunteers.

Manpower.—Early in 1945, the director made it clear that the situation demanded an ever-increasing war effort, particularly on the part of men in the 26 through 37 age group. Selective Service issued instructions to local boards to consider continuance of occupational deferments for registrants ages 26 through 37 more carefully. Boards also were instructed to classify as available for service any man with an occupational deferment who left the employment for which he was deferred unless (1) the registrant requested a determination and a determination was made that it was in the best interest of the war effort for him to leave such employment for other work or (2) the local board found that there were adequate reasons involving the registrant or his family which justified the registrant in leaving such employment. At the same time, at the request of the director of war mobilization and reconversion, Selective Service instructed its local boards to survey anew the cases of men in the 18 through 25 age group deferred for agricultural activities to provide "to the full extent permitted by law" for the reclassification of men so deferred.

Soon after the fall of Germany, a critical manpower situation developed in the shipyards on the west coast engaged in repairing damaged naval vessels. As a result, Selective Service instructed state directors of California, Washington and Oregon to "postpone the induction of any registrant employed in specific west coast repair yards, irrespective of age or state of registration."

When the full force of the war effort was shifted to the Pacific after VE-Day, the army and navy began to place greater emphasis on the need of men under 30 years of age, and in May, Selective Service requested local boards to liberalize occupational deferments so as to reduce the total number of men to be inducted in the 30 through 37 age group, and to review cases of registrants in the 18 through 25 age group who previously had been rejected for general military service or found qualified for limited service only, and to forward for re-examination those whom they had reason to believe might qualify for military service. At about the same time, the army announced it would accept a limited number of registrants under 26 with minor physical defects who did not meet the physical standards for general military service.

Late in June, an unprecedented burden was placed on the transportation facilities of the nation, especially in the West, and resulted in a

directive by Selective Service to its local boards calling for special consideration to requests for deferment of western railroad employes in specified occupations.

The end of the war brought further liberalization of deferment policies and on Sept. 4, 1945, Selective Service announced the elimination of the II-B classification in which had been placed all registrants deferred because they were "necessary to and regularly engaged in an activity in war production." All registrants in this classification, if qualified, were placed in Class II-A, in which classification are placed registrants found to be "necessary to and regularly engaged in an activity in support of the national health, safety and interest."

Shortly after VE-Day, Selective Service announced a plan for the discharge of a "very limited number" of conscientious objectors.

At the opening of the school year in September, Selective Service announced a revised procedure that would permit all youths who entered high school before reaching the age of 18 to continue in school until completion of the high school course, or until 20 years of age, whichever is sooner. Similarly, a college student who entered college before becoming 18 years of age, is permitted to remain in college until completion of the current semester or quarter, or "until he ceases to pursue continuously and satisfactorily such course of instruction, whichever is the earlier."

Veterans.—Under the provisions of Section 8 of the Selective Training and Service Act of 1940, as amended, a major responsibility of Selective Service is to assist the veteran either in obtaining re-employment in a former position or new employment. The Selective Service System's Veterans' Assistance Program has three objectives:

(1) To assist veterans of the Second World War in obtaining re-employment in former positions, or positions of like seniority, status and pay, and to assist them in obtaining new employment, where desired;

(2) To furnish information to veterans and to the public regarding rights, benefits and privileges of veterans under existing federal, state and local laws and to refer inquirers to the proper agency or organization or person where such rights can most readily be obtained; and

(3) To stimulate national, state and community awareness of their responsibilities for providing sufficient job opportunities to accomplish full employment for veterans.

This program was designed to be carried out through the full co-operation of all Selective Service agencies and personnel, compensated and uncompensated, and through full use of the facilities of other governmental agencies such as the United States Employment Service of the War Manpower Commission; the United States Civil Service Commission; the Railroad Retirement Board, and the War Food Administration, as well as by means of assistance from labor organizations, veteran groups and other civic agencies.

The activities of the program are carried out by national headquarters, state headquarters and local boards of the Selective Service System, under the direction of the director of Selective Service. The Veterans Personnel Division of national headquarters has the responsibility for general co-ordination of the program.

Each local board has been officially designated as a Veterans' Information Center. Each local board has attached to it one or more re-employment committeemen. These men serve without compensation. They are prominent business or professional men of the community who are in position to advise the veteran, particularly in matters of employment, and to assist him in obtaining a job.

In addition to rendering service to honorably discharged veterans of the United States Army, Navy, Marine Corps and Coast Guard, in connection with their employment problems, Selective Service, at the request of the administrator, War Shipping Administration, has assumed responsibility of assisting former members of the United States Merchant Marine in securing their re-employment benefits under the provisions of Public Law No. 87, which contains substantially the same provisions as the act providing re-employment rights for other veterans.

SENEGAL. See FRENCH WEST AFRICA.

SERT, José Maria, Spanish painter: b. Barcelona, Spain, 1876; d. there, Nov. 27, 1945. Internationally famous Spanish artist, Señor Sert is probably best known in the United States for his murals in the main floor lobby of the RCA Building, Rockefeller Center, and in the Sert Room of the Waldorf-Astoria Hotel, New York City. His works have been described as baroque in style, executed with a controlled exuberance, and presenting subjects with the greatest attainable measure of dramatic effect.

At the age of 20, Sert went to Paris to study. He met Degas there, and the two were good friends. He lived and worked in that city for the greater part of his life. His first American exhibition was at the Wildenstein Galleries in New York in 1924. In Europe he painted the walls and ceilings of the Council Hall of the Palace of the League of Nations, executed murals for the duke of Alba's Liria Palace in Madrid, and many other palaces and churches. His mural, interpreting the spirit of contemporary America, replaced the incompleted mural by the Mexican artist, Diego Rivera, in the RCA Building. Rivera's mural became the subject of a violent controversy when work on it was ordered halted because of the inclusion of a portrait of Lenin. A close friend of the late King Alfonso XIII of Spain, and of other Spanish royalty, Sert supported Franco in the Spanish Civil War, and later became an attaché of the Franco embassy in the Vatican City. Sert's first wife was a grandniece of the composer, Franz Liszt. They were later divorced, and in 1928 he married Roussadana Mdivani, sister of Alexis, Serge, and David Mdivani.

SEYCHELLES. An island group in the Indian Ocean, 800 miles east of Zanzibar, constituting a British colony. With dependencies, there are 92 islands, having a combined area of 156¼ square miles; the population (1943 est.) numbered 33,621. The capital and chief port is Victoria (pop. 5,286), on Mahé (56 square miles), the largest island. The governor (Sir William Marston Logan appointed Jan. 5, 1942) is assisted by an Executive Council of 3 members (2 ex officio and 1 nominated) and a Legislative Council which, since 1944, has had 12 members (6 officials and 6 nominated unofficials); the 6 unofficial members are to be elected after the war. In 1944 the revenue of the colony amounted to 991 rupees and the expenditure was 947 rupees. The 1945 budget provided for an expenditure of 1,155,700 rupees. In 1943 there were 29 primary schools (26 state-aided) and 2 secondary schools, all operated by the Roman Catholic and Anglican communities. Plans for improving educational and health facilities have been undertaken through grants from the British treasury (1941–45) of £8,115. The principal crops are cassava and corn; coconuts are also cultivated by the Sey-

chellois on a large scale, and smaller quantities of sugarcane and tobacco. The principal export is copra; cinnamon leaf oil, vanilla, patchouli, and other essential oils are also exported on an increasing scale as methods of distillation are improved, as well as guano, tortoise shell, and birds' egg yolk. The United States and Great Britain are the sole importers of the oils. The Indian rupee currency is used. A Seychelles Chamber of Commerce was formed in 1944. There are some 60 miles of roads on Mahé. Victoria is a port of call for scheduled steamship services between Bombay, India, and Mombasa, Kenya Colony. During the Second World War, British naval and air stations were established in the colony.

SHAEF. See SUPREME HEADQUARTERS, ALLIED EXPEDITIONARY FORCE.

SHAPOSHNIKOV, Boris Mikhailovich, Soviet army officer: b. Zlatoust, Russia, 1882; d. reported on March 27, 1945. One of the outstanding commanders of the Red Army, Marshal Shaposhnikov was chief of the Supreme Soviet Military Academy and had served as chief of the general staff during the first year of the German invasion of Russia, until ill health forced him to retire in the fall of 1942.

The son of a minor government employee, Shaposhnikov was a graduate of the Moscow Military Academy, from which he won a scholarship to the Imperial Academy of the General Staff. He graduated at the head of his class. At the time of the Russian revolution he held the rank of colonel in the Czarist army. He did not immediately join the revolutionary party, but accepted a commission in the new Red Army. In 1925, he was commandant of the Leningrad military zone; in 1927, he received the Moscow command; and in 1928, was appointed chief of the general staff. In February 1932 he started the reorganization of the General Staff School, as he was considered the best person to bring the Soviet Army up to date in military science. He was made a marshal in May 1940, and resumed his position as chief of general staff in 1941, having retired from that post the preceding year because of ill health. He took over the campaign against Finland and brought it to a swift conclusion. As the Second World War became imminent, Stalin called upon him to devise military plans to insure Russia's security. During the siege of Moscow, he served under Stalin as military adviser and deputy commissar of defense. In October 1942 he was appointed commander in chief of the Red Army and Air Force. He received in January 1940 the decoration of the Order of Lenin, and, in February 1944, the Order of Suvorov, first class, Russia's highest military award. Plans to erect a monument in his honor at Moscow were announced at the time of his death.

SHETLAND ISLANDS. A group of more than 100 large and small islands northeast of the Orkney Islands, off the northern coast of Scotland, with a total area of 551 square miles, and an estimated population of 19,700 (1940). For several centuries under Scandinavian sovereignties, the islands were transferred to Scotland in 1468 and now form its northernmost county. The inhabitants are largely of Norse extraction. Mainland, Yell, Unst, Fetlar, Bressay, Whalsey, and Foula are the largest of the islands, about two thirds of the entire area being on Mainland. The capital is Lerwick, on Bressay Sound, on Mainland. Cereal crops and vegetables are grown, and domestic animals—notably the small Shetland ponies—are raised. Herring fisheries, however, comprise the chief industry, others being the manufacture of woolens and gloves. Exports include fish, oil, cattle, horses, eggs and gloves. Scalloway, on Mainland, is the largest village.

Shortly after the German occupation of Norway in 1940, a ferry service was started which, until the end of the war, ran regularly between a secret base at Skaloway, on the west coast of the Shetland Islands, and Norway; secret agents and munitions were regularly shipped over to the Norwegian underground, and Norwegian volunteers were brought back for training in Britain. The ferry service consisted of United States armed subchasers flying the Norwegian flag and manned by Norwegian seamen. See also SCOTLAND.

SHIMADA, Shigetaro, Japanese admiral: b. Tokyo-fu, Japan, September 1883. Sixty-two-year-old Admiral Shimada, minister of the navy at the time of Japan's attack on Pearl Harbor, was arrested as a war criminal by American occupation authorities at his home in Tokyo on Sept. 12, 1945. A member of the Tojo clique, he resigned with the Tojo Cabinet after the fall of Saipan to the Americans in July 1944; in January 1945, he gave up his post as a supreme war councillor. Shimada is a graduate of Japan's Naval War College. In the First World War, he was an attaché at the Japanese embassy in Italy. He was promoted admiral in 1929. In 1938, he became commander in chief of the Kure Naval Station in China waters; was later commandant of the Yokosuka Navy Yard near Tokyo. He became Tojo's navy minister in October 1941.

SHIPS (NAVAL AND MERCHANT) LOST IN WAR. See NAVAL PROGRESS.

SIAM (formerly THAILAND). A kingdom of southeastern Asia north of British Malaya, 200,148 square miles in area. The Vichy government of France ceded to Siam under duress in 1941 parts of the French Indo-China provinces of Laos and Cambodia (26,664 square miles); and in 1943 Japan "presented" Siam with four unfederated states of British Malaya (14,776 square miles) and two of the Shan states of Burma (15,388 square miles). The population of Siam proper was estimated in 1940 to number 15,718,000; at that period the country contained, besides Siamese, about 500,000 Chinese and large numbers of Burmese, Indians, and Malays. Siam signed an offensive and defensive alliance with Japan on Dec. 21, 1941, and declared war on the United States and Great Britain on Jan. 25, 1942; the regent of Siam issued a proclamation on Aug. 16, 1945, stating that the war declaration was "null and void, as unconstitutional and contrary to the will of the Thai people." The words *Thai* and *Thailand*, designations in the native language for the people and the country, became effective by proclamation for use in all foreign languages on June 24, 1939; on Sept. 8, 1945, it was announced that the use of *Siamese* and *Siam* should be resumed in all foreign languages, the native forms being retained only within the country. Bangkok (pop. 684,994), the capital, was known as Phetchabin during Japanese occupation of the country; on Jan. 1, 1945, the capital was removed to Saraburi, 108 miles to the northeast, Bangkok continuing as the commercial center.

Government.—Theoretically, Siam is a constitutional monarchy. King Ananda Mahidol (b. Sept. 20, 1925) is being educated in Switzerland, his powers being exercised by a Regency Council of which Nai Pridi Phanomyong became the head in 1945. Legislative power is exercised by the Regency with the advice and consent of a People's Assembly, and executive power through a State Council (a Cabinet) selected from the membership of the legislature; half of the 156 members of the People's Assembly are elected, the rest being nominated by the Regency. In practice, the president of the State Council (the prime minister) exercises wide authority; on Sept. 2, 1945, Nai Thawi Bunyakat became premier, announcing a policy of restoring good relations with the United Nations.

Finances.—With adoption of the Gregorian calendar in 1941, the financial year begins on January 1. Revenue in 1942 amounted to 210,000,000 bahts (in 1941, a baht equaled U.S. $0.3697), and expenditure was 259,000,000 bahts. The treasury reserve on Jan. 1, 1942 was 31,857,000 bahts. Note circulation on July 31, 1941, was 225,709,717 bahts the reserve against it totaling 250,192,580 bahts.

Religion and Education.—The prevailing religion is Buddhism. In 1937 there were in Siam 13,752,091 Buddhists, 626,907 Mohammedans, 69,227 Christians, and 15,880 others. Primary education is compulsory and free in local public and municipal schools. The following table gives the educational statistics as of March 31, 1939:

Type of School	Number	Number Teachers	Number Pupils
Government	429	3,626	61,297
Local public	10,768	32,208	1,325,891
Municipal	304	1,644	58,592
Private	1,308	5,596	121,965

There are two universities, but no statistics in regard thereto are available.

Production.—Predominantly agricultural, Siam is part of the "rice granary" of the Far East, rice being the outstanding item in the country's economic life. Its cultivation occupied 9,517,453 acres in 1941 (90 per cent of the total arable land), and engaged about 80 per cent of the population; the yield of clean rice in 1940–41 was 4,923,350 tons. The cultivation of rubber in southern and eastern Siam is an important industry; exports in 1940 totaled 49,600 short tons. Other agricultural products include coconuts, cotton, pepper, and tobacco. Livestock includes about 6,000,000 cattle, 5,500,000 water buffalo, and 400,000 horses. There are also some 11,000 domesticated elephants, used to a considerable extent for logging operations in the teak forests of northern Siam.

Tin is the principal mineral mined; in 1940 the output of metallic tin amounted to 19,500 short tons. Wolfram is another important mineral product; and other deposits, some of which are also mined commercially, include antimony, copper, gold, iron, lead, manganese, molybdenum, rubies, sapphires, silver, zinc, and zircons.

External Trade.—Under normal trading conditions, rice constitutes about 53 per cent of Siam's exports; tin ore and rubber, each 14 per cent; and teak 5 per cent. Other exports include hides, resins, and fishery products. While China is the main market for Siam's rice, considerable quantities are also exported to British Malaya and Ceylon. The total value of exports in 1940–41 was 257,600,000 bahts, this including rice, 142,800,000 bahts; tin ore, 48,400,000 bahts; rubber, 39,300,000 bahts; and teak, 5,900,000 bahts. Imports in 1940–41 had a total value of 163,400,000 bahts; the principal imports were textiles, foodstuffs, metal manufactures, tobacco, automobiles, and fuel oil.

Communications.—At outbreak of war Siam's railroads aggregated some 2,000 miles in length. A line southward from Bangkok connected with the system of British Malaya, and one eastward from the capital extended into Cambodia. The railroad northward from Bangkok reached Chiengmai (410 miles); after the fall of Singapore, some 60,000 prisoners of war, mainly British and Australian, were employed in extending this line for 300 miles toward Moulmein, Burma, nearly half the men dying from the terrible conditions under which they worked. Highways open to traffic have a total mileage of 2,200, but most of them are impassable during the monsoon weather. A government-subsidized air transport service between principal centers was in operation prior to Japanese occupation of the country.

Principal Events.—Siam's release from Japanese thralldom in 1945 was welcomed by all save a few of the people. Traitorous Siamese statesmen had made enemy penetration of the country easy once French Indo-China had capitulated to Japan in 1941, but the ensuing declarations of war by Siam upon the United States and Great Britain had little significance as far as the majority of Siamese was concerned, the Japanese being thoroughly unpopular. The United States, in fact, did not retaliate by declaring war in turn, continuing to accord recognition to M. R. Seni Pramoj, the country's minister in Washington.

During the war, Siam had not yielded to Japan the benefits which the latter had anticipated. The kingdom had been rewarded for its nominal adherence to the "East Asia Co-Prosperity Sphere" by accretions to its territories at the expense of its neighbors, and for military reasons Siam's northern railroad was extended into Burma by the ruthless use of prisoners of war, but Japan had not been able to extract more than a fraction of the country's agricultural and mineral wealth because of the ravages wrought upon Japanese shipping by the United States Navy. In the later stages of the war, too, Japanese installations in Bangkok were bombed repeatedly by United States aircraft based in India, and by Royal Air Force and British naval planes operating from Burma. Adding to these difficulties, moreover, Japanese and quisling administrators in Siam were faced with a steadily growing resistance movement, Anglo-American agents dropped into the country by parachute working in close conjunction with many secret leaders of the guerrillas.

With the end of Japanese occupation in sight, on Aug. 16, 1945, Regent Nai Pridi Phanomyong proclaimed "null and void" the 1942 war declaration against the Allies, promising repeal of laws "prejudicial to our interests" and compensation for damages resulting from those laws. While Siam also undertook to restore to British control the Malayan and Burman territories which the Japanese had awarded to her, retrocession of areas detached from French Indo-China was presumably to be negotiated directly between France and the Siamese government. The day after publication of the regent's proclamation brought resignation of the Cabinet of Premier Kuang Kovid Aphaiwong;

on August 31 the premiership was filled by Nai Thawi Bunyakat, who also assumed the ministry of foreign affairs and other portfolios. On taking office the new premier assured the People's Assembly that it would be the policy of his government to strengthen the bonds between Siam and the Allied nations. It was, perhaps, as a token of the intent to return to the former cordial relationship that announcement was made on September 8 of discontinuance of use abroad of the designation Thailand and resumption of the term Siam, by which the country had been generally known prior to 1939.

Lieut. Gen. Akdi Sena Narong, deputy commander in chief of Siam's Army, flew from Bangkok to Kandy, Ceylon, on September 2 to discuss with Admiral Lord Louis Mountbatten, supreme Allied commander in Southeast Asia, arrangements for formal capitulation, the seizure of 113,000 Japanese troops still in the country, and the release of some 20,000 surviving prisoners of war—mainly British, Netherlanders, and Australians, and including about 300 Americans. Troops of the British 7th Division entered Siam on September 4, and all Japanese forces in the kingdom were included in the surrender signed with Mountbatten in Singapore on Sept. 12, 1945, by Lieut. Gen. Seishiro Itagaki, deputy of Field Marshal Count Juichi Terauchi, commander in chief of all the Japanese southern armies. The Japanese had completely merged the Siamese economic system into their own, and had seized all foreign-operated enterprises—commercial, educational, and religious. With the end of hostilities, the new government of Siam reversed all confiscatory acts which had been taken under Japanese duress, and on Jan. 1, 1946, Prince Viwat Anajai Jaiyant signed in Singapore, on behalf of Siam, a treaty of peace with Great Britain and India. This was the first such agreement since the war's end.

SIBERIA. See UNION OF SOVIET SOCIALIST REPUBLICS.

SICILY. The largest, most fertile, and most populous island in the Mediterranean. It has belonged to Italy since Giuseppe Garibaldi wrested it from the king of Naples in 1860. It has an area of 9,926 square miles and a population (1936) of 4,000,078. Palermo, the capital and largest city, has a population of 411,879; other large cities are Catania (pop. 244,972), Messina (192,051), Agrigento (32,951), Trapani (63,540), and Syracuse (53,166). The island is mountainous, especially in the north. The most remarkable natural feature of Sicily is the active volcano Mount Etna which attains a height of 10,758 feet. There are three universities, at Palermo, Catania, and Messina. Agriculture is the chief occupation of the inhabitants, the chief products being grapes, olives, oranges, lemons, and almonds. Industries are largely confined to the making of wine (two thirds of Italy's wine normally comes from Sicily), olive oil, fruit and vegetable canning, and there are extensive fisheries. Sicily accounts for nearly three fourths of the total Italian sulphur output and for approximately one tenth of the entire world production.

The Allied Invasion.—American, British and Canadian forces landed in Sicily from North Africa on July 10, 1943, and conquest of the island was completed August 17, with the capture of Messina. Gen. George C. Marshall, chief of staff of the United States Army, in his biennial report issued in October 1945, stated that Axis casualties in Sicily numbered 167,000, of whom 37,000 were Germans. Allied losses (killed, wounded, and missing) totaled 31,158. Italy was invaded from Sicily on Sept. 3, 1943 by the British Eighth Army under Lieut. Gen., later Field Marshal, Sir Bernard L. Montgomery, followed six days later by the United States Fifth Army under Lieut. Gen. Mark W. Clark.

Principal Events.—Resentment caused by the draft law, by the scarcity of food, clothing and housing, and by the fantastically high cost of living, flared into violence at Ragusa, Sicily, early in January 1945. Clashes with government troops were reported, and in February civil disorders spread to other parts of the island, in some localities taking the form of separatism. The separatist movement was fostered by the latifundists, or large landowners, who feared for their property holdings under the Left wing movement sweeping the rest of Italy. One faction of the separatists adopted the American flag for its emblem and advocated annexation by the United States, demanding that Sicily become the 49th state. Increasing amounts of Allied relief supplies ameliorated the economic situation, and as conditions improved the separatist movement dwindled. Lack of fuel and transportation continued to handicap economic rehabilitation, however; exports were limited by the lack of shipping; and in the absence of imported manufactured goods, business remained at a standstill at midyear. The cotton crop of 1943–44 was reported to have broken all records, totaling 8,000 metric tons as compared with a prewar average of 3,000 to 5,000 metric tons; and superphosphate production recovered sharply, four of the island's five large plants having resumed operation. The citrus fruit crop was large, but lack of transportation affected its exportation, and living costs remained abnormally high. See also ITALY.

SIERRA LEONE. See BRITISH WEST AFRICA.

SILESIA. See CZECHOSLOVAKIA.

SILOTI, Alexander, Russian pianist and conductor: b. Kharkov, Russia, Oct. 10, 1863; d. New York City, Dec. 8, 1945. Siloti was one of the few pianists who had preserved the grand manner of the illustrious period typified by the Liszt-Rubenstein school of pianistic interpretation. Together with Moriz Rosenthal, he was one of the two surviving pupils of Franz Liszt.

Siloti was a piano pupil of Sverev and Nikolai Rubinstein at the Moscow Conservatory, where he also studied theory and harmony with Tschaikovsky. He won the conservatory's gold medal when he was graduated in 1881. The previous year he made his first appearance as soloist with an orchestra in Moscow. From 1883 to 1886 he studied with Liszt at Weimar, returning to the Moscow Conservatory in 1887 as a professor. He remained there until 1890, when he began appearing in concert recitals throughout central and western Europe. After touring England and the United States (1898–99), he returned to Russia in 1901 to conduct the concerts of the Moscow Philharmonic Society for a season, and two years later he organized his own orchestra in St. Petersburg (now Leningrad), with which he gave an annual series of symphonic concerts, playing many new works by younger Russian composers. After the Russian revolution, he escaped to England in 1919, and then in 1922 came to the United States, where he taught at the Juilliard Graduate School in New York City from 1925 until 1942. Siloti was a cousin and teacher of Serge Rachmaninov.

SILVER. The final estimate of refinery production of silver in the United States and Alaska during 1944 was 35,651,049 fine ounces, as compared with 40,900,121 ounces in 1943, according to the report compiled by the United States Bureau of the Mint, with the co-operation of the Bureau of Mines. The value of the silver production, calculated at $0.7111 per fine ounce, was $25,351,857 in 1944 compared with the 1943 value of $29,084,530. Of the total 1944 silver output, Idaho yielded 10,645,179 fine ounces; Utah, 8,104,520 ounces; Montana, 6,669,273 ounces; Arizona, 4,674,097 ounces; Colorado, 2,136,140 ounces; and Nevada, 1,408,259 ounces. Alaska's output in 1944 was 15,240 ounces.

At the end of the war with Japan, the United States Treasury still held about 550,000,000 ounces of free silver, but 300,000,000 ounces subsequently have been monetized, leaving only about 250,000,000 ounces to meet domestic and foreign needs.

SIMONS, Moises, Cuban composer: b. Hanava, Cuba, 1889?; d. Madrid, Spain, June 28, 1945. A distinguished composer of both light and serious music, Moises Simons is probably best known for his famous popular song, *The Peanut Vendor,* which shortly after its publication in 1930 became the hit of the European continent. Mr. Simons studied music with his father, Leandro Simons, and played the organ as a boy in the Jesus Maria Roman Catholic Church in Havana. In 1930 he received first prize of $5,000 for his operetta, *La Nina Merse,* from the Spanish government, when it was presented at the World's Fair at Barcelona. His money and property were confiscated by the Nazis when they marched into Paris just after he had escaped from the French capital, where he was residing. In 1943, the Cuban government awarded him a gold medal for his contributions to music. He recently had gone to Madrid to complete an operetta. Among Mr. Simons' most popular compositions were *Negra Quirina* (Cuban Belle), *A Gozar* (Let's Be Gay), and *Serenata Cubana* (Cuban Serenade).

SIMPSON, William H., United States Army officer: b. Weatherford, Texas, May 19, 1888. Lieutenant General Simpson commanded the United States Ninth Army for the Allied assault on Nazi Europe in 1944 and 1945. In its issue of April 9, 1945, *Life* magazine said of the Ninth and its commander, "Ninth is the only American army under Field Marshal Sir Bernard L. Montgomery. Its commander, Lieut. General William H. Simpson, is a man after Montgomery's heart. Both are infantrymen, yet both have the greatest respect for machines—especially artillery. They both believe in sending the foot soldier forward only after a terrific barrage. That is one reason they work well together."

General Simpson was graduated from West Point in 1909. In February 1917, he accompanied Gen. George Bell, Jr. to France on an observation tour. He went overseas for a second time in May 1918 as the 33d Division's assistant chief of staff, later becoming its chief of staff. He is a graduate of the Army General Staff School, AEF (France); the Infantry School, Fort Benning (1924); the Command and General Staff School (1925); and the Army War College (1928). From 1932–36, he was professor of military science and tactics, Pomona College, California; and from 1936–40, a member of the Army War College faculty. He received his first army command, that of the Fourth, in October 1943, and in June 1944 was named commanding general of the American Ninth. He holds the Distinguished Service Medal, the Silver Star, the French Croix de Guerre, and the Legion of Honor for his First World War service.

SINGAPORE. See BRITISH MALAYA.

SLADEN, Fred Winchester, United States Army officer: b. Massachusetts, Nov. 24, 1867; d. New London, N.H., July 10, 1945. Major General Sladen commanded the 5th Infantry Brigade in France during the First World War and served as superintendent and commandant of the United States Military Academy at West Point from July 1922 to March 1926. Graduating from West Point in 1890, General Sladen served in various posts before he returned to West Point as commandant of cadets, in 1911. He served in China, 1914–16; on the Mexican border, 1916–17; commanded the first and second officer's training camps at the Presidio, San Francisco, 1917; and then for six months, until he went overseas in April 1918, he was secretary of the general staff at the War Department. In Europe he saw action on the Aisne, the Marne, at Château Thierry, St. Mihiel, and in the Meuse-Argonne. He took part in the march into Germany and the occupation of the Rhineland, remaining there until the summer of 1921, when he returned to the United States to take command of Fort Sheridan for seven months. He was commander of the Philippine Department, 1926–28, and of the 3d Corps Area at Baltimore from 1928 until his retirement in 1931.

SLATE. Slate production in the United States in 1944 amounted to 477,840 short tons valued at $5,004,195, according to the United States Bureau of Mines. This was an increase of 2 per cent in quantity and 3 per cent in value over the 1943 production of 468,860 short tons valued at $4,870,237. The total sales of roofing slate in 1944 amounted to 89,090 squares valued at $802,179, a decrease of 7 per cent in quantity and 5 per cent in value from the previous all-time low record of 1943, when sales were 96,220 squares valued at $841,750.

SLOVAKIA. See CZECHOSLOVAKIA.

SMITH, Clifford Peabody, American jurist, editor, and religionist: b. Geneva, Ind., Mar. 4, 1869; d. Waban, Mass., Aug. 8, 1945. In 1908 he relinquished his post as a judge of the District Court of Iowa and soon became an important figure in the Christian Science Mother Church, The First Church of Christ, Scientist, in Boston.

He was graduated from the University of Iowa in 1891, began the practice of law that year, and nine years later was elevated to the bench. After becoming interested in Christian Science in 1896, he joined The Mother Church six years later. His first official service to Christian Science was as a member of a committee to define and preserve the legal rights of Christian Scientists, whom he represented in litigations. He was called to Boston as First Reader of The Mother Church in 1908, and later that year was also appointed a trustee of the Christian Science Publishing Company. During his long service, Judge Smith was twice elected president of the Christian Science Society (1911–12; 1937–38). He was a member of the board of lectureship (1911–14); manager of the committee on publication (1914–29); and editor of the *Christian Science Journal, Sentinel,* and *Herald.* Since 1932

he had devoted his official time as editor of The Mother Church's bureau of history and records.

SMITH, Lowell H., United States Army officer: b. Santa Barbara, Calif., Oct. 8, 1892; d. Tucson, Ariz., Nov. 4, 1945. One of the nation's pioneer aviators, Colonel Smith set 16 world flying records for speed, duration, and distance. In 1924, he commanded the army's first round-the-world airplane flight for three fourths of the route, after the plane carrying the original flight commander, Maj. Frederick L. Martin, was lost in an Alaskan blizzard. This flight covered a distance of approximately 26,103 miles in 365 hours 11 minutes flying time, and took a total of 175 days between the departure from Seattle on April 6 and the return to that city on September 28.

In 1915, Colonel Smith was with the Aviation Service of the Mexican Army, and in 1916–17 he was a mechanical engineer working in Nevada silver mines. He enlisted as an aviation private in the army in April 1917. In December 1917 he was commissioned first lieutenant, and in October 1918, captain. He played a prominent part in an army transcontinental endurance flight in 1919, and gained further fame in 1923, when he and Lieut. John Richter, another army flier, broke eight world aviation endurance records on August 27–28 over Rockwell Field in San Diego. Their flight lasted more than 37 hours, during which they refueled their plane in the air. With Gen. George C. Kenney, he worked out an entire procedure for massed airborne troop landings, in the 1930's, and piloted the first plane to participate in mass parachuting. During the Second World War, he trained heavy bombardment crews at Davis-Monthan Field, Tucson, which he commanded. He was twice awarded the Distinguished Service Medal, for his service in the First World War, and for his world flight prowess; the Mackay Medals, in 1919 and 1924, as the outstanding American military flier during those years; the Distinguished Flying Cross, in 1924, for the first refueling of airplanes in flight; and the Helen Culver Gold Medal in 1925.

SMITHSONIAN INSTITUTION, The. This institution was created by act of Congress in 1846, according to the terms of the will of James Smithson, of England, who in 1826 bequeathed his property to the United States of America "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." The affairs of the institution are administered by a board of regents whose membership consists of the chief justice of the United States, the vice president, three members of the Senate, three members of the House of Representatives, and six citizens other than members of Congress. The executive officer directly in charge of the institution's activities is the secretary. Dr. Alexander Wetmore is the present secretary.

The stated purpose of the institution, "the increase and diffusion of knowledge," is carried out by research, exploration, and publication. In normal times explorations form a major part of this program, but the usual program has been curtailed, owing to wartime conditions, and the few field expeditions that were carried on were concerned in the main with matters connected with the conduct of the war or with commitments dating back to the prewar period.

The institution's publications constitute its primary means for accomplishing the "diffusion of knowledge." They are issued by the institution proper and by the bureaus under its administrative direction and appear in 14 distinct series as follows: Smithsonian Institution, *Annual Report* (with general appendix made up of selected articles reviewing the year's advances in science), *Contributions to Knowledge* (suspended), *Miscellaneous Collections*, a new series called *War Background Studies* (now terminated), and special publications; National Museum, *Annual Report, Bulletin, Proceedings,* and *Contributions from the National Herbarium;* Bureau of American Ethnology, *Annual Report* and *Bulletin;* Astrophysical Observatory, *Annals;* National Collection of Fine Arts, *Catalog;* and Freer Gallery of Art, *Oriental Studies.* Copies of all publications in these various series are distributed free to a large list of libraries, learned societies, and specialists throughout the world, and certain of the less technical publications, such as the Smithsonian Reports, are widely distributed among the general public. During the year 56 publications were issued, and the total number of publications distributed was 141,635.

The Smithsonian library, made up of 10 divisional libraries and 35 sectional libraries, now contains 918,460 volumes, pamphlets, and charts. Accessions during the year numbered 4,844 volumes, pamphlets and charts.

The staff of the institution continued to devote a considerable part of its time until the end of the war to furnishing technical information to the army, navy, and war agencies. Many of the requests called for extended research, reports, or conferences. The subjects on which information was most frequently requested were the peoples, geography, climate, and fauna of Pacific war areas; disease-bearing insects and other animals; shipworms and ship-fouling organisms; molluscan hosts of Oriental parasites; edible and poisonous fishes, and fishing kits for life rafts; edible and poisonous plants, and plants for camouflage purposes; sources of strategic minerals; fiber substitutes; American and foreign woods for construction purposes; and material for survival manuals.

The institution continued to take its part in the government's program for the improvement of cultural relations with the other American republics. Of the five volumes of the monumental *Handbook of South American Indians* being prepared and published by the institution, four are in press and the fifth is practically completed. The new Institute of Social Anthropology created within the institution is continuing co-operative work in anthropology in Mexico and Peru. Several members of the staff conducted field expeditions in South and Central American countries in co-operation with scientists of those countries.

All the priceless and irreplaceable material from the collections of the United States National Museum that had been evacuated to a safe place during the war was returned safely to the institution. It occupied some 29,000 cubic feet of space and weighed 117,500 pounds.

It is expected that the Smithsonian Institution's program of research and exploration will be resumed as soon as possible after the re-establishment of normal conditions.

ALEXANDER WETMORE,
Secretary, Smithsonian Institution.

SNYDER, John Wesley, United States government official: b. Jonesboro, Ark., June 21, 1896. A banker by profession, and since July 23, 1945, director of the Office of War Mobilization and Reconversion, John W. Snyder has been in government service almost continuously for more than 13 years. He began his government career

in 1930, entering the office of the Comptroller of Currency in Washington, and was for 7 years engaged in the liquidation of Missouri banks which had failed in the 1929–30 crash. In 1937, he was named manager of the St. Louis loan agency of the Reconstruction Finance Corporation. In July 1940, he went to Washington as special assistant to the RFC chairman, retaining control of the St. Louis agency. In July 1941, he became executive vice president of the Defense Plants Corporation, RFC subsidiary. He held this position throughout the crucial years of the war, but resigned in August 1943 to become vice president of the First National Bank in St. Louis. From 1940 to 1944, he served as a special assistant to the board of directors of the RFC. In April 1945, he was recalled to Washington to take over the direction of the Federal Loan Administration, succeeding Fred M. Vinson. Three months later he again succeeded Vinson as OWMR director, when Vinson entered the Truman Cabinet as secretary of the treasury. As head of the Office of War Mobilization and Reconversion, Mr. Snyder has the gigantic task of directing the rechanneling of his country's economy from a wartime to a peacetime basis. Mr. Snyder was educated in the Jonesboro, Ark., public schools and at Vanderbilt University. In the First World War, he served overseas as a captain in the Field Artillery. From 1919 to 1930, he held various banking positions in Arkansas and Missouri.

SOCCER. See SPORTS IN 1945.

SOCIAL SECURITY BOARD. The 10 years since August 1935, when the Social Security Act established the Social Security Board, have brought great economic changes and world-wide concern with the types of programs which the board administers either directly or through collaboration with the states—federal old-age and survivors insurance, federal-state unemployment compensation, and federal-state public assistance. The board has also been responsible, since February 1942, for providing civilian war benefits, civilian war assistance, and assistance to enemy aliens and others affected by restrictive governmental action; these emergency programs declined as victory neared. For more comprehensive information and current data on social security programs, see the monthly *Social Security Bulletin*, the *Social Security Yearbook*, and the board's *Annual Reports* to Congress.

Old-age and Survivors Insurance.—This is the only program under the Social Security Act which is completely federal in administration and financing. It is providing at least a start toward social insurance protection against old age or death to the families of some 71 million workers who have acquired wage credits in industrial or commercial employment at some time in the years 1937–44.

During the wartime labor shortage, thousands of eligible persons postponed filing benefit claims because they had covered employment, and others who had filed claims had payments deferred or suspended while they could earn. Nevertheless, the beneficiary rolls rose throughout 1944 and in 1945. The Social Security Board maintains more than 1,900 full or part time offices throughout the country, which provide local services to workers, their employers, and actual and potential beneficiaries. The average monthly number of claims received rose from the nearly stationary levels of 35,000 in 1941–42 to 63,000 in August 1945.

By July 31, 1945, about 530,500 workers aged 65 and over were on the benefit rolls, at a total rate of $12,654,000 a month, though some continued in covered jobs and so did not draw benefits currently. Nearly one third of these retired workers had wives aged 65 or over who were also entitled to benefits based on their husbands' wage records; the average monthly benefit in force for an aged couple was $38.

Monthly benefits to survivors of deceased insured workers, including insured workers who died while serving with the armed forces, were in force for about 610,400 persons in July 1945, at a total rate of $9,340,000 a month. The 85,300 aged widows on the rolls were entitled to an average of $20.20 a month. Families consisting of a widow and one child beneficiary averaged $34.20 a month; for those with three or more such children the average was $50.40. Monthly benefits were payable also to 5,800 dependent parents of deceased insured workers who left no unmarried child under age 18 and no widow. In addition to the monthly benefits payable to survivors, $2,032,000 was distributed in July 1945 in lump-sum death payments on behalf of workers who left no one eligible for monthly benefits for the month in which the worker died.

In January-March 1945 approximately 2,100,000 employers and 36,500,000 workers contributed 1 per cent each on $18,242,000,000 in wages taxable under the Federal Insurance Contributions Act. Contributions are paid and benefits are based on only the first $3,000 received in a year by any one worker or paid by any one employer to an individual employe. An increase in the contribution rate scheduled for 1945 was postponed by Congress. Amounts equivalent to contributions collected are appropriated to the old-age and survivors insurance trust fund from which are paid the benefits and administrative costs of the program. As of July 31, 1945, this fund held a balance of $6,649,300,000 to meet current and accumulating liabilities for benefits.

It is estimated that, on Jan. 1, 1945, 38,900,000 workers were insured, of whom 31,700,000 workers were fully insured and 7,200,000 were currently insured. For the remainder, or 45 per cent of those who had some wage credits, work in covered employment had been so brief or intermittent that the worker had not yet met the requirements for insured status.

Unemployment Compensation.—Under the Social Security Act, the board must determine that state unemployment compensation laws and their administration conform to certain specified conditions and make grants to states for proper and necessary costs of administering the state law. The 44 million industrial and commercial workers who earned wage credits in 1944 under the 51 laws of the states and territories are subject to the eligibility conditions and benefit provisions of these separate laws.

Nearly all operations in the fiscal year 1944–45 reflected the end of the war in Europe and its approaching end in Asia. Increases over the preceding year were 6 per cent for continued claims, 4 per cent for number of weeks of unemployment compensated and average weekly number of beneficiaries, and 17 per cent for the benefit expenditures. Declines in civilian employment were reflected immediately in these state systems. A weekly average of 529,600 initial claims for benefits was filed in the United States in the last two weeks of August 1945, one and one-half times the average in the previous peak month of April 1940. In July 1945 benefits under the 51 laws

totaled $14,352,000 and went to a weekly average of 185,500 beneficiaries.

In 1945, 36 states substantially revised their unemployment compensation laws. As of July 1, 1945, the maximum weekly benefit amount was $20 or more and the maximum duration 20 weeks or more in states which together include about 80 per cent of all covered workers in the United States. About a fourth of the covered labor force was in states which provide uniform duration of benefits—compensating for the same number of weeks all eligible workers who remain unemployed for as long as the maximum number. As of July 1945, however, no state provided a maximum of $25 per week for 26 weeks to all unemployed persons. Almost seven eighths of the covered workers are in the 38 states which require no more than a one-week waiting period before benefits are payable to eligible workers. Four states now pay additional amounts to beneficiaries with dependents.

In the fiscal year 1944–45 the states collected $1,251,958,000 in contributions from employers (in four states employes also contribute). States deposit collections in their accounts in the federal unemployment trust fund and withdraw funds from that account to pay benefits. Collections totaled $101,314,000 less than in the preceding fiscal year, largely because of the experience-rating provisions of 43 states which reduce contribution rates of employers if unemployment among their workers has been relatively low. As of July 31, 1945, the unemployment trust fund held $6,726,954,000 to the credit of the 51 state accounts. State reserves, however, vary greatly in relation to the potential drains on their accounts. To assure payment of benefits even if state funds become depleted, the War Mobilization and Reconversion Act of 1944 authorizes federal advances to states under certain conditions.

Public Assistance.—The Social Security Act provides federal grants to states to meet a share of state expenditures for assistance to needy persons aged 65 or over; to children deprived of support or care because of the death, absence from home, or incapacity of one or both parents; and to the needy blind. Eligibility requirements, methods of determining need, and amounts of payments are matters of state responsibility, except that the federal act specifies certain conditions for approval of state programs and limits to federal financial participation.

In July 1945, payments to these groups of needy persons represented 91 per cent of the total bill for public aid in the United States. In the fiscal year 1944–45, federal funds bore two fifths of that bill through grants to 51 jurisdictions with approved plans for old-age assistance, to 49 for aid to dependent children, and 46 for aid to the blind.

During the war, recipient rolls declined because many people who otherwise would have needed aid got jobs or received more help from relatives. The number of recipients of old-age assistance in July 1945 (2,035,000) was 10 per cent below that in the peak month, June 1942. The 254,000 families receiving aid for dependent children in July 1945 were 36 per cent below the number in March 1942, the high month. Even in aid to the blind, the 55,400 recipients in the 49 states granting such aid were 11 per cent fewer than the number in the peak month of that program, September 1942.

Payments to needy persons under state assistance programs supplement any other resources the recipient may have. Payments to individuals therefore vary greatly and hence do not necessarily represent all that a recipient has to live on. Declines in recipient rolls have made it possible for many states to provide higher payments to needy persons than in earlier years and to recognize increased living costs. For the United States as a whole, the average payment for old-age assistance was $29.76 in July 1945 as compared with $27.71 a year earlier; in the same period, under state plans approved by the board, the average payment per family receiving aid to dependent children rose from $43.48 to $47.55, and in aid to the blind from $28.84 to $30.35. These averages, however, mask wide differences among states and among localities within states. The range from high to low state in average payments in July 1945 was from $48.88 to $11.44 for old-age assistance, from $91.06 to $20.82 for aid to dependent children, and from $53.24 to $12.98 for aid to the blind.

ARTHUR J. ALTMEYER,
Chairman, Social Security Board.

SOCIALISM. The greatest advance made along socialist lines in 1945 was the election of a labour government in Great Britain—a government which within a few months had passed through the House of Commons a bill to make the Bank of England, the staid "Old Lady of Threadneedle Street," a state institution. A leading government spokesman had declared in the House of Commons that within the life of the current Parliament (which could continue until 1950) the country's coal, iron and steel, electricity, and gas industries, and its transportation services (with the exception of shipping, but including dock and harbor facilities) would be nationalized.

Great Britain was an outstanding example of socialist-oriented moves made during the year in many countries, namely, moves toward the extension of public control over the primary means of production and exchange—factories, banks, mines, railways, power plants; and land—and of various services of benefit to all or most of the people. An important obverse side of this extension of public control was the concern shown for safeguarding minorities: the participation of women in the French elections; the preservation of the various nationalities in the Yugoslav federation; and the protection of the remaining Jews in Poland from renewed Fascist terror. In various countries, including Great Britain, socialist-oriented measures were opposed by some declared Socialists, and in more than one case were supported, or even initiated, by non-Socialists. In most of the liberated countries of Europe the moves in the direction of socialism were carried on by national regimes composed of various political groupings—Socialists, Communists, Agrarians, Laborites, Christian Democrats, and in some instances representatives of the employing classes—all committed, although in varying degrees, to programs of national rebuilding with socialist features. In Italy, 70 per cent of the reconstituted Socialist Party, in its first postwar congress, voted to continue the party's co-operation with the Communists in the reconstruction program. The French municipal and cantonal elections showed large gains for both the Socialists and the Communists over their prewar standing, and sharp losses for parties opposed to a break with the past. The bitterly contested national elections (October 21) gave the Communists some 152 seats in the Constituent Assembly (out of a total of 522 seats for continental France), and the Socialist and Popular Republi-

can parties each a few less, insuring strong representation in the prospective reorganized government for the parties favoring socialism. The Soviet Union, with its 16 constituent republics, prepared to launch a new five-year plan of socialist construction, involving all departments of the socialized economy, but stressing the heavy industries, and particularly transportation.

The newly elected government of Great Britain, like the governments of France and of the Netherlands—all variously committed to programs with socialist elements—soon faced nationalist movements in countries which they had regarded as their colonies. Commentators regarded these movements as a further expression of pleas put forward at the San Francisco Conference on behalf of some 1,000,000,000 people in colonial and semicolonial regions for a more equitable share in the world's material wealth, particularly for more control and use of their local resources and industries. The program of socialism was posed on a world scale.

In the United States, as in Europe, the close of the Second World War in 1945 brought threats of mass unemployment and inflation, and renewed demands for the setting up of safeguards against these evils—demands which coincided with, if they did not reflect, world trends in the socialist direction. Official declarations were made, and measures introduced (with varying success), calling for jobs for all workers, adjustment of wages to meet costs of living indexes, continued rent controls and increased housing facilities in crowded areas, a freer flow of consumers' goods, with continued control of prices to prevent inflation, a comprehensive national program of publicly organized medical services, and the extension of full political and economic equality to Negroes and other minority groups.

Sharp theoretical differences between Socialists and non-Socialists continued during 1945. But the theoretical question as to whether control by the state should be increased or diminished was subordinated to the necessity for insuring minimum necessities and a tolerable future for majorities which had suffered deeply in the war and had become essential, conscious participants in their own liberation.

SOCIETY ISLANDS. See FRENCH OCEANIA.

SOCIOLOGY. Notwithstanding the continued disruption of the graduate schools of sociology by the absence of both students and faculty in the armed forces and other war-connected work, a considerable amount of research of more than ephemeral interest was published during 1944–45.

Methodology.—A number of monographs dealing with the more fundamental methodological problems of the field have appeared. Otto Neurath's *Foundations of the Social Sciences* is written from the standpoint of logical positivism, and embodies both the strength and weaknesses of that position. Felix Kaufmann's *Methodology of the Social Sciences* has been influenced by the same general tradition; but it is a more systematic and critical work, and it incorporates the modifications of logical positivism necessitated by recent researches, especially in its discussion of the extreme physicalism and radical behaviorism of the earlier work of the Vienna circle. Unlike many of his colleagues, Kaufmann recognizes that "the social sciences differ from the natural sciences" because of the "central position" held by value problems in the former field. "Teleological concepts correspond to teleological methods, and there is no reason for disputing the legitimacy of such concepts in the social sciences." Judgments of fact and judgments of value are both analytic propositions, but they differ in that the former are made according to rules of scientific procedure, while the latter are determined by axiological rules. On the other hand, Ray Lepley, in his *Verifiability of Value* attempts to show how the study and treatment of value judgments may be brought within the methodology of natural science. He finds the main difference between descriptive and evaluative judgments to be that in the former "all desires are (ideally) excluded, except the desire for truth," whereas in the latter "all relevant desires must be brought within the arena of deliberation . . . and the decision . . . is ultimately determined wholly or more largely by the wish, preference, or purpose which wins in competition with other desires." It is a work of high competence, but it oversimplifies the problem by neglecting the historical distinction between intrinsic values, or what is desirable for its own sake, and instrumental values, or what is desirable as a means to something else.

Clarence Marsh Case's *Essays in Social Value* approaches the same problem from the standpoint of a general theory of culture. It endeavors to work out the logical connection between the objective investigation of social values and their philosophical standardization, and to formulate the factual and ethical relationships between the social and other values of modern society. C. L. Stevenson's *Ethics and Language* attempts less to provide a contribution to the problem of value than a methodology whereby a greater degree of critical exactness may be attained in this highly controversial field. Also of importance in this connection is H. A. Hodges' *Wilhelm Dilthey: An Introduction*, the first comprehensive treatment in English of the system of thought of a German philosopher whose theory of "understanding" poses a major methodological issue in contemporary social and psychological science. Morris Cohen's *Preface to Logic* is also of sociological interest because of its trenchant criticism of the pretensions of positivism.

Research Techniques.—A number of important works dealing with the theory and application of specific research techniques have also been published, notably Ernest Greenwood's *Experimental Sociology: A Study in Method;* Angell's essay in *The Use of Personal Documents in History, Anthropology and Sociology,* by Louis Gottschalk, Clyde Kluckhohn, and Robert Cooley Angell; and *A Constant Frame of Reference for Sociometric Research* by Urie Bronfenbrenner. Greenwood has given a convincing demonstration of the unexploited opportunities confronting the sociologist in testing causal hypotheses by the use of comparative field studies in which all but one relevant factor have been controlled, but to define all such studies as "social experiments," and the *loci* where they occur as "social laboratories," is to broaden these concepts so extensively as to render them valueless in precise methodological theory. Bronfenbrenner's work is one of a series of *Sociometric Monographs,* by J. L. Moreno and his collaborators. Moreno has also further developed his psychodramatic technique in a series of *Psychodrama Monographs,* the most recent of which are *Psychodrama and Therapeutic Motion Pictures,* and *Role Analysis and Audience Structure* by Zerka Toeman.

Human Nature, Personality and Culture.—The perennial interest in this subject which sociologists share with biologists and psychologists is reflected in the monographs devoted to two of the most in-

fluential pioneers in the field, *The Social Theory of James Mark Baldwin,* by Vahan D. Sewny, and *George Herbert Mead: Philosopher of the Social Individual,* by Grace Chin Lee. In *Human Nature: The Marxian View,* Vernon Venable has attempted a purely expository presentation of the synthetic theory of Karl Marx and Friedrich Engels on this subject, a theory which they nowhere systematically formulated, but which must be laboriously extracted from their manuscripts, letters, and printed works. This Venable has painstakingly done, to the complete neglect of later writers whose contributions are important for a competent understanding of the contemporary Marxian position. The result is an exposition of Marxian theory which bears the same relationship to current communist thought that a critical analysis of Darwin's *Origin of Species* would bear to the theory of evolution in modern biology. This topic is further developed in Ralph Linton's *Cultural Background of Personality* and in Abram Kardiner's *Psychological Frontiers of Society.* The latter work consists of descriptive summaries of preliterate or retarded cultures by field investigators for which Dr. Kardiner, a psychoanalyst of neo-Freudian views, provides the theoretical analysis and interpretation. The book is an attempt to work out the technical problems originally treated by Dr. Kardiner in his *The Individual and His Society,* mainly those centering in the theory that each society presents a basic personality type arising from the early experiences shared in common by all members of the culture and providing the complex of value-attitude systems as a nucleus about which the total personality configurations of the individual members develop.

Translations.—A number of excellent translations of foreign works of sociological interest have appeared. The most important of these is a new edition of the Henry Reeve text of Alexis de Tocqueville's great classic, *Democracy in America,* revised and edited by Phillips Bradley. Its most valuable section is the 100-word essay in which the editor analyzes de Tocqueville's views of the basic issues of democracy in theory and practice, and charts the course along which its aspirations may become realities. Translations from the German of Levin L. Schücking's *Sociology of Literary Taste* and Alfred von Martin's *Sociology of the Renaissance* are noteworthy, as is also the appearance of Ernst Casirrer's *Essay on Man,* in which the author responds to repeated American requests for a translation of his three-volume *Philosophie der symbolischen Formen* by providing a fresh reappraisal and condensation of its basic ideas. Translations from the Italian include: the *Autobiography* of Giambattista Vico, which provides the only complete edition in English of any of Vico's works; Luigi Sturzo's *The Inner Laws of Society: A New Sociology,* which furnishes American readers with an authentic account of the social theory and program of a form of Catholicism which has good prospects of increasing its influence on both shores of the Atlantic; and Benedetto Croce's *Politics and Morals,* which contains the negative reactions of a critical mind to the sociology of Vilfredo Pareto. A translation of *Casa-Grande e Senzala,* the major work of the Brazilian sociologist, Gilberto Freyre, is also in preparation.

Applied Sociology.—Perhaps no problem in this field transcends in importance the loss of the sense of community resulting from modern technology and urbanization. There is no more comprehensive treatment of the sociology of the resulting group tensions on the national and international scale, and no clearer demonstration of the significance of this field as an area of co-operative research of all the social and psychological sciences, than the symposium, *Approaches to National Unity,* edited by Lyman Bryson. George Bernard de Huszar's *Practical Applications of Democracy* is a study of the ways in which the average citizen can participate more fully in the political, industrial, educational and cultural life of the community, and rediscover in modern urban society some of the values formerly derived from the town meeting. In *The Story of the Springfield Plan,* Clarence L. Chatto and Alice L. Halligan present programs for effecting community integration through the schools, while Henrik L. Infeld's *Co-operative Communities at Work* gives brief accounts of several sectarian and folk communities, with suggestions for resettlement programs.

Periodicals.—*The Journal of Social Issues,* a new non-technical quarterly designed to pool the insights acquired by applied scientists from their experience and research in various fields of social action, appeared in February. Since the social scientist "must have emotional understanding of the situations he deals with" as well as techniques for ordering his data, it will to a large extent enlist the services of persons who are technical authorities and at the same time members of the groups whose problems are under discussion. There is a promising field for such a journal, although the first two issues, devoted to "Racial and Religious Prejudices in Everyday Living," do not carry their analysis of the problem much beyond the level of common sense.

In celebrating the sesquicentennial of the founding of the University of North Carolina and the quarter-centennial of the Institute for Research in Social Science, *Social Forces* devoted its March number to the history of the development of the concept of regionalism and to a series of papers on regional analysis and interpretation. *The American Journal of Sociology* marked its semi-centennial by bringing out a special issue in May dealing with the developments of the last fifty years and the prospects for the proximate future in sociology and allied disciplines.

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SOIL CONSERVATION SERVICE. By the close of 1945, all of the states had enacted legislation authorizing programs to restore eroded lands and establish soil conservation systems of agriculture

based on scientific findings and precise knowledge of land conditions and land capabilities. Formation of soil conservation districts by local referendum was authorized by the laws of 46 of the states. In New Hampshire, the statute set the state up as one soil conservation district, while the law of Connecticut provided for needed land-use adjustments and conservation farming through group action under guidance of the state commissioner of agriculture, assisted by the state soil conservation advisory committee.

During the war years, agricultural producers more than doubled their endeavors, both in putting conservation on the land and in organizing and planning for greatly accelerated effort for conservation after the war. By the end of the harvest season, 1,395 soil conservation districts including approximately 770,684,685 acres and 3,544,751 farms had been organized in 45 states. At the same time, thousands more farmers and ranchers were requesting on-the-ground assistance in order that they might start their individual programs without delay.

The Soil Conservation Service, in its role of technical leadership in soil conservation planning and action, continued to serve these districts with the greater part of its available resources. An outstanding trend was toward design of efficient conservation farming, based on the needs and capabilities of the land, yet flexible enough to permit production increases or decreases, or shifts to new crops, to conform with demands likely to develop in the immediate postwar period. With this trend an important factor, conservation farming plans for an additional 5,186,429 acres were prepared during the year by technicians of the service working with farmers and ranchers in all states, Puerto Rico and the Virgin Islands. This brought the total acreage planned to approximately 130,000,000 acres.

In this climactic year of the war, pressure for unlimited farm production had a retarding effect on establishment of new conservation plans for farms and also in some measure on the functioning of plans already in process of establishment. In addition, in many instances there was a lack of sufficient technical personnel to assist farmers directly on their land. Despite handicaps, however, conservation treatment was completed on more than 12,000,000 additional acres throughout the country. At the same time, soil depletion and erosion were known to have affected from one to three million acres as a direct result of production of necessary wartime crops, such as peanuts and soybeans, without adherence to planned rotations and other conservation methods. Erosion occurred also in western regions where hilly land, or land with shallow topsoil, was plowed and planted to wheat. Some of this land was in the "dust bowl" area of the 1930's and had been regrassed by farmers and conservationists co-operating to save vast areas from devastation by wind erosion. It was estimated that constant effort over a decade might be required to restore these scattered plowed areas.

Crop residue management was emphasized by the service as one method of conserving soil moisture and preventing erosion, and the method had been established as a permanent practice on more than 7,000,000 acres, largely in the Great Plains states, by the summer of 1945. Contour cultivation with grassed waterways had been adopted as a permanent pattern for growing row crops on approximately 14,500,000 acres. Strip cropping was established on approximately 5,000,000 acres, and construction of 438,445 miles of contour terraces had been completed. Important progress had been made, also, in planning and establishment of high-yielding crop rotations, suited to land conditions and capabilities, especially in the nine southeastern states. In all regions of the United States, farmers using scientifically designed rotations with contouring, strip cropping, terracing, and adapted residue management realized yields from 20 to 40 per cent higher during the war period.

During the year, the land-capability classification, developed by the Soil Conservation Service, was widely used as a guide to planning land-use adjustments and conservation programs. In this classification there are eight land-capability classes, based on those physical characteristics that affect economic choice of crops, farming methods, and needs for conservation: Class I land is nearly level, not subject to serious erosion, easily worked and fairly productive. This type of land requires no special practices other than maintenance of fertility and good physical conditions to keep it productive. Lands of Classes II and III are productive lands requiring special practices to control erosion, improve drainage, or correct deficiencies in natural fertility. By using these necessary precautions, these lands are suitable for cultivation and a wide range of crops. Class IV land is suitable for occasional or limited cultivation and should be used to produce only soil-conserving crops. Class V land is nearly level and suitable for grazing or woodland but too wet, rocky, or subject to overflow to permit cultivation. Good vegetative cover should be maintained at all times on such land. Classes VI and VII include land that is steep or erodible, thin or unproductive, together with large areas too dry for safe crop production but useful for grazing or forestry if vegetation is not allowed to deteriorate. Class VIII land is rough, swampy, or otherwise unsuitable for grazing or forestry, although usually it will support some useful vegetation and wildlife.

The conservation-needs inventory of the total land of the 48 states, based on the land-capability classification, and made available to the public in June 1945 by the service, shows, for each state, the current land uses, the land-capability classes indicating needed land-use changes, the remaining acreages that should be placed under one or several of 54 soil and water conservation practices, and the amounts of labor, motor and horse equipment, seed, and tree and shrub plantings required to complete the work. The service assisted several hundred soil conservation districts in outlining their total remaining conservation jobs, by applying the conservation-needs inventory data and information directly to districts' areas and individual farms. For example, in the Upper Mississippi Region (Ohio, Michigan, Indiana, Illinois, Iowa, Minnesota, Missouri, and Wisconsin) where interest in soil conservation increased markedly during the last war year, 125 of the 294 soil conservation districts in the region had worked out such detailed postwar plans by the autumn of the year. Priority areas were developed by the service to aid the governing bodies of the districts with this planning; areas having a 20-year deterioration rate were placed in the high-priority category as most urgent for conservation treatment, and these lands were marked for immediate attention by farmers within the districts and service technicians assisting them.

• In connection with the continued acute demand for meat and other animal products, the service made studies of the nation's ranges from

the standpoint of the physical capabilities of the land to determine effective means of increasing range acreages, improving grass stands on run-down ranges, and keeping good ranges in top-producing condition. During the year, approximately 10,000,000 acres of range land in soil conservation districts were brought under proper systems of stocking through assistance given ranchers by service technicians. At the same time, some 324,000 acres in the 17 western states were seeded to grass under Soil Conservation Service programs, making a total of more than 2,000,000 acres seeded. This seeding work has resulted in making available nearly 1,000,000 animal-unit-months of grazing capable of producing an additional 50,000,000 pounds of meat annually.

A new Water Conservation Division, established as a part of the Soil Conservation Service June 30, 1944, began water conservation surveys on 28 watersheds. The functions of the division are to conduct investigations for appraisal of water resources, determine the feasibility of proposed water projects, and provide information on water to departmental agencies, soil conservation districts, other state and federal agencies, and civic groups and individuals.

Intensive research studies were carried on throughout the year in all states to refine soil conservation practices, adapt them to local conditions, and determine results in profit to land users through per-acre yields and maintenance of critical areas in periods of high production. In this connection, field experiments were carried on to improve methods of establishing meadow cover on cultivated lands, use of improved grasses and legumes, and contouring methods for very irregular topography. A study of the effect of depth of topsoil on corn yields, completed during the year in Missouri, showed cumulative losses in yield in proportion to topsoil losses:

Topsoil 12 inches deep produced 64 bushels per acre
Topsoil 10 inches deep produced 60 bushels per acre
Topsoil 6 inches deep produced 46 bushels per acre
Topsoil 4 inches deep produced 38 bushels per acre
Topsoil 2 inches deep produced 25 bushels per acre

Examples of water conservation experiments in progress included sedimentation studies in the southwest where silting of reservoirs is a critical problem in the water utilization of the region; development of methods for soil conservation and supplementary sediment control on reservoir watersheds in various areas; and studies to explore the possibilities of recharging ground water through water spreading on soils treated to maintain infiltration rates.

The service continued assisting farmers with construction and management of fish ponds: during the year, 4,319 ponds were stocked with 6,150,000 fish and placed under management for production of 250 pounds of palatable fish per acre of pond annually. Two million shrubs from the service's nurseries, including native plums and cherries, grapes, improved elder, hybrid filbert, and berries, were planted on gullied slopes and banks and in hedges and field borders. The nurseries also supplied soil conservation districts with 1,000,000 pounds of grass and legume seed and 50,000,000 seedlings for erosion control plantings on eroded fields, sand-blow areas, in shelterbelts and streambank field borders, and for demonstrations of new pastures, crop rotations, cover crops, and reseeding range and abandoned lands. The service had more than 2,000 farm conservationists working in areas where farm woodlands comprise 10 per cent or more of farm lands, and in all these areas farmers were assisted with improvement cutting methods as they harvested pulpwood, sawlogs and fuel to supply wartime needs.

The Soil Conservation Service managed 82 land utilization projects in 34 states, comprising 7,141,000 acres, and administered leases with 27 different state agencies covering 334,469 acres in 22 projects. More than six million acres of this land were used for grazing by livestock owners; hay and other crops were grown in some projects; and 22,000,000 boardfeet of timber were harvested during the year. Soil conservation practices were spreading to a marked degree, in and near these projects.

An intensive training program was conducted by the service in all regions to train new technical personnel, returning veterans, visiting students from foreign countries, and local farm people, in the most up-to-date objectives, plans and methods of the work of the service and the soil conservation districts.

Total funds available to the service for the fiscal year 1945 amounted to $31,456,999. As of September 1, its personnel numbered 9,146 employees in Washington, all 48 states, Puerto Rico, and the Virgin Islands.

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SOLOMON ISLANDS. Groups in Oceania and the Indian Ocean under British administration. In Oceania is a Melanesian group of islands with a total area of 16,500 square miles; 12,400 square miles constitute the British Solomon Islands Protectorate (see WESTERN PACIFIC ISLANDS, BRITISH), and 4,100 square miles form part of the mandated Territory of New Guinea (q.v.). In the Indian Ocean, one of the lesser dependencies of Mauritius is a group also known as the Solomon Islands.

SOMALILAND, British. See BRITISH SOMALILAND.

SOMALILAND, French. See FRENCH SOMALILAND.

SOMALILAND, Italian. See ITALIAN EAST AFRICA.

SOMALILAND PROTECTORATE. British territory in East Africa on the coast of the Gulf of Aden, bounded on the northwest by French Somaliland, on the southwest by Ethiopia, and on the southeast and east by former Italian Somaliland. The area is about 68,000 square miles, and the population numbers some 500,000, of whom 344,700 are Somalis. Berbera (pop. 30,000 in the cold season) is the principal port, and others are Zeila and Onkor; towns in the interior include Hargeisa, the capital, Sheikh, and Burao. The country was occupied by Italian forces from Aug. 16, 1940, till March 21, 1941; since the latter date the protectorate has been under military government. The military governor (Brigadier G. T. Fisher appointed March 1943) has his headquarters at Hargeisa, to which place the civil administration has been transferred from Berbera. Revenue in 1942–43 amounted to £249,032, and expenditure was £137,834, representing a net surplus of £111,198.

Although most of the population is nomadic, there are government-operated primary and technical schools at Sheikh, and elementary schools at district centers; a school for girls opened at Burao in February 1945 was the first in the protectorate, where previously there had

been religious (Moslem) objection to the education of women. In 1945 the British government provided £268,650 for the provision of increased medical and educational services, improvement of communications and pastures, and development of water supplies; and £46,850 to make an economic survey of the protectorate. The Somalis tend large numbers of cattle, sheep, and goats, the hides and skins of which constitute staple exports; large quantities of goatskins are imported into the United States for leather manufacturing. Under a new agreement signed in 1944 for a term of two years, tribes of the protectorate continue to enjoy grazing rights in reserved areas in Ethiopa for six months each year (a practice of the last half century); while these grazing lands, which extend as far as Dire Dawa, on the Djibouti-Addis Ababa railroad, remain the property of Ethiopia, they are administered by the military government of the protectorate, which is also responsible for the Ogaden district of former Italian Somaliland. The principal crops are millet, corn (maize), and dates; because of limited production, rice and dates are also imported, in larger volume than normal after failure of the 1943–44 rains. Guano, collected on Mait Island, mother-of-pearl shell, gums, and resins are other exports; and sugar and textiles are imported. Both Indian and East African currencies are legal tender. No railroads have been built, but there is an increasing mileage of highways fit for motor traffic.

SOMERVELL, Brehon Burke, United States Army officer: b. Little Rock, Ark., May 9, 1892. As chief of the United States Army Service Forces from March 1942 until V-J Day, General Somervell had the stupendous task of supplying food, clothing, munitions, and transportation for America's global army. Additionally, he was responsible for the Service Forces' handling of army pay and allotments; the processing of some 75 billion dollars in army contracts; the operation of base port organizations; and the administration of the army's medical service. In 1933, General Somervell made an economic survey of Turkey, gathering much valuable data on transportation and supply problems in the Near East. From 1936 until 1940, he directed New York City's WPA. He was assistant chief of staff in charge of the Supply Division, General Staff, from 1941 until he took over the Service Forces in 1942. He is a graduate of the United States Military Academy (1914), and in the First World War, served with an engineering unit. His military awards include the Distinguished Service Cross and the Distinguished Service Medal with oak leaf cluster. On Nov. 20, 1945, it was revealed in Washington that General Somervell had requested retirement from the army.

SOUTH AFRICA, Union of. A self-governing dominion of the British Commonwealth of Nations. Constituted by the Union of South Africa Act, Sept. 20, 1909, by which the self-governing colonies of the Cape of Good Hope, Natal, the Transvaal, and the Orange River Colony were united in a legislative union, these provinces became original provinces of the Union, the last-named being now called the Orange Free State. The Union has a total area of 472,494 square miles, and an estimated population (June 30, 1944) of 11,068,000, of whom 2,300,000 are Europeans and 8,768,000 non-Europeans, including over 7,250,000 Bantu. Executive authority is vested in a governor general, appointed by the crown, assisted by an Executive Council of 12 ministers. Legislative power is vested in a Parliament, consisting of the king (represented by the governor general), a Senate, and a House of Assembly. The Senate originally consisted of 40 members, 8 of whom were nominated by the governor general, and 32 were elected (8 from each province, under a system of indirect representation). Since 1936, however, it may include 4 additional native members, directly elected, one from each of the four electoral areas, for five-year terms. All senators must be registered voters, at least 30 years of age, British subjects, five-year residents of the Union, with unencumbered property amounting to at least £500, and with the exception of the four native senators, must be of European (white) descent. The House of Assembly originally consisted of 150 members. Cape native voters are entitled to elect three additional members. Women over 21 and all adult males of white extraction exercise the franchise. A Natives Representative Council reviews legislation and other matters affecting the native population. The chief cities, with their populations (census of 1936) are Johannesburg (519,384), Capetown (344,223), Durban (259,606), Pretoria (128,621), Port Elizabeth (109,841), and Germiston (79,440).

Religion.—According to figures based on the census of 1936 the population was organized along religious lines as follows:

Sects	Europeans	Non-Europeans
Christian		
Non-Catholics	1,804,058	3,673,745
Roman Catholics	92,453	273,773
Jews	90,645	....
Hindus	....	160,117
Mohammedans	....	79,088
Buddhists and Confucians	....	3,671
No religion	....	3,349,977
Others, or unspecified	16,701	45,670
Totals	2,003,857	7,586,041

Over 1,000,000 of the Europeans are adherents of the Dutch churches, and about an equal number of non-Europeans are adherents of the Native Separatist churches. The 3,549,977 non-Europeans classified under "No religion" are mainly Bantu and non-Christian Hottentots and Bushmen.

Education.—Under the South Africa Act, higher education (including the universities) and vocational and technical education are exclusive functions of the Union government, primary and secondary education being directed by a provincial education department in each of the four provinces. There are five universities—those of Capetown, Stellenbosch, Witwatersrand, Pretoria, and South Africa, this latter including constituent colleges at Bloemfontein, Wellington, Grahamstown, Pietermaritzburg, and Potchefstroom. The average total enrollment in the universities and colleges in 1942 was 11,801. Various technical colleges are under the Union ministries of mines, labor, social welfare, and education. In all provinces primary education is free, separate schools being maintained for European and non-European pupils. European schools in 1941 numbered 3,622, with 388,925 pupils (over 16 per cent of the European population); non-European schools, 5,229, with 678,161 pupils (roughly 9 per cent) of the non-European population. The Union has two official languages, English and Afrikaans, the latter based mainly on the Dutch language of the Netherlands.

• **Finances.**—The Union budget for the year ending March 31, 1946, anticipated revenues of £118,277,000, as compared with estimated rev-

enues of £112,000,000 for 1944–45. Between March 31, 1938, and the same date in 1945 the internal debt increased from £161,494,698 to £522,098,589. During the same period the external debt was reduced from £101,123,208 to £18,159,805, mainly through the repatriation of London loans. Estimated civil expenditures for 1944–45 amounted to £59,813,500; defense expenditures, £102,500,000.

Defense.—Every citizen between the ages of 17 and 60 is liable for wartime service, and those of European descent between 17 and 25 are liable for periods of prescribed peaceime training with certain units, distributed over four consecutive years. On June 30, 1937, the permanent force consisted of 196 officers and 3,957 other ranks, including 1,440 members of the South African Air Force. In September 1939 the total strength of the Union's armed forces was 28,000 men, including the part-time soldiers of the Active Citizen Force. Although enlistment for service in the war was entirely voluntary, by 1944 the original force had increased to more than 160,000 Europeans and 100,000 non-Europeans. More than 86,000 Europeans and 39,300 Africans had seen service outside the Union.

Agriculture.—In 1939, the number of European-owned farms in operation was approximately 108,000, comprising a total area of about 213,181,000 acres. Maize (corn) and wheat are the principal cereal crops. The corn crop, the chief source of food for most of the natives, was very small in 1944–45, amounting to only 3,700,000,000 pounds, as compared with the crop of 4,612,000,000 pounds for 1942–43. It was estimated that some 2,500,000 bags (of 200 pounds) of corn might have to be imported. Increased prices were being paid to producers, and the price to consumers was advanced sixpence a bag. It was also anticipated that about 1,000,000 bags of wheat would have to be imported in 1945, and double that amount in 1946. The 1944–45 potato crop amounted to 375,000,000 pounds, representing an increase of about 19 per cent over that of the preceding year; and the bean crop was unofficially estimated at 60,000,000 pounds, an increase of about 45 per cent. The estimated yield of oats for 1944–45 was 333,300,000 pounds (compared with 243,750,000 pounds in 1943–44), and that of barley 151,950,000 pounds (96,000,000 pounds in 1943–44). Plans were under way for making South Africa (which formerly imported over $1,000,000 worth of rice each year from India and Burma) an important rice-producing country.

Of the industrial crops, sugar (produced mainly along the coast of Natal) amounted in 1944–45 to 614,158 tons (of 2,000 pounds), compared to 585,000 tons in 1943–44. In 1943–44, tobacco amounted to over 32,000,000 pounds (compared with 24,000,000 pounds in 1942–43). In 1939–40 tea production reached a total of 3,352,000 pounds.

In 1943 there were in rural areas: 13,068,000 cattle, 37,888,000 sheep, 6,151,000 goats, and 1,174,000 pigs. In 1936–37, there were 750,000 horses, 126,000 mules, and 822,000 donkeys. The estimated production of wool for 1944–45 amounted to approximately 710,000 bales, about 60,000 bales less than in 1943–44. The dairy industry has shown substantial increases in the manufacture of condensed and powdered milk. Between 1929 and 1944 the amount of fresh milk used annually by factories increased from about 1,000,000 gallons to over 10,000,000, and considerably more fluid milk was also consumed by the public. During 1943–44 factory production of butter amounted to 42,741,000 pounds, and of cheese, to 15,250,000 pounds.

Since 1912 at least £11,340,000 has been spent on government irrigation schemes in addition to considerable government assistance given to private projects. The Vaal River project (the Union's largest irrigation enterprise), completed at a cost of about £4,300,000, has a dam with a water storage capacity of 62 square miles, and has brought over 20,000 acres under cultivation. Government plans were reported in 1945 for an expenditure of £8,000,000 for the construction of a 50-mile irrigation canal from the Orange River, at Bothulio to the Brak River.

The output of whale oil, much reduced since 1940, was expected to reach 500,000 barrels in 1945–46 through the reconversion of former whaling vessels which had been used during the war as minesweepers and through the acquisition of new factory ships.

Minerals.—Gold continued to be the supreme mineral product, output for the first six months of 1945–46 being 6,115,726 fine ounces (compared with 6,129,950 fine ounces for the same period of 1944–45). A rise in the British Treasury price of gold, from 168 shillings an ounce to 172 shillings threepence was expected to be partly offset by the gold realization charge and by increases in wages granted by the government to native mine workers in 1944. The government's plan provided for increases of 4d–5d per shift over the current average wage of 2s 3–⅞d (about 47 cents) a shift paid to the native workers, and for time and a half for Sunday work. The diamond industry had a prosperous year in 1944, gross profits of the De Beers Company reaching £8,018,000, of which £3,719,000 was reported to have been distributed in dividends. Of the total sales of minerals from before 1910 to 1944 inclusive, gold accounted for 80.4 per cent, diamonds to 11.8 per cent, coal to 5.3 per cent, copper to 1.2 per cent, and other minerals (including silver, platinum, osmiridium, tungsten, antimony, chrome, iron ore, tin, manganese, and asbestos) to 1.4 per cent.

Manufacturing.—In 1942, the gross value of the industrial output (apart from that of minerals, and of industries conducted by the state) was £272,875,859. The Union's industrial establishment included nearly 10,000 enterprises, with land and buildings valued at more than £55,000,000, and a total annual payroll of almost £63,000,000. The majority of the factories were engaged in the processing of foods, beverages, and tobacco; but the 1,263 plants producing engineering and related materials employed 113,000 workers, nearly half of whom were Europeans. All the industries accounted for about 150,000 European and 247,000 non-European workers.

Foreign Trade.—Gold, upon which the economy of the country largely rests, normally accounts for 70 per cent of the value of all exports, followed by wool (12 per cent), diamonds and fresh fruit (each 3 per cent), and sugar (2 per cent). The remaining 10 per cent is accounted for mainly by manganese, coal, iron ore, chrome, copper, asbestos, hides and skins, mohair, corn, wines and wattlebark. In 1938, the last year prior to the Second World War, the main imports (machinery, metals and metal products) amounted to about 40 per cent of the total, with textiles, fibers, yarns, and clothing ranking next, in the order named. In 1940 the exports of the Union (other than gold) amounted to a total value of £34,090,637; its imports—mainly ma-

chinery and machine supplies, clothing materials, and foodstuffs—amounted to £105,009,934.

Communications.—In 1945, South Africa had 13,931 miles of railways, including 13,080 miles of 3-foot 6-inch gauge, and 851 miles of 2-foot gauge. In 1944 the railways carried 44,576,428 tons of freight and over 200,000,000 passengers. The railways, which are state-owned and operated, employ a total staff of 142,000, of whom 82,100 are Europeans, and 59,900 natives, Indians, and other non-Europeans. In the fall of 1945, the Union had 285,048 passenger automobiles (not including government cars), 2,287 buses, 56,093 trucks, 5,334 tractors, and 17,543 motorcycles. Most of the passenger cars were reported to be at least seven years old, many being discarded every year. Apart from 6,000 trucks (many of only limited serviceability) converted from military to civilian use, it was anticipated that as before the Second World War, from 85 to 90 per cent of the motor vehicles required in the Union would be purchased in the United States or Canada. Postal, telegraph, and telephone services are under unified government direction. Radiotelegraph and submarine cable circuits link the country with the rest of the world by way of Great Britain. In 1944 there were 219,204 subscribers' telephones, and 21,597 farm line telephones. Wireless licenses (also under the Postal Department) issued to Dec. 31, 1944, numbered 365,250. The Union is linked with Great Britain by air mail service through Cairo, and with countries of the Western Hemisphere through West Africa and Brazil.

Principal Events in 1945.—*Political.*—At their New Year conference, the South African Labour Party decided to remain in the government and to continue the coalition. Parliament assembled January 20 and the session was largely devoted to postwar plans for housing, demobilization, health, and social security. Finance Minister J. H. Hofmeyr's budget in March was unspectacular and was dubbed the "Transition Budget," promising encouragement to secondary industries in the face of overseas competition.

The most important bills passed were the Social Security Bill, allocating £16,000,000 for this purpose, and the Housing Bill, giving the state the widest powers. The food shortage was very grave, especially in respect to meat, and the government investigated the possibilities of rationing but decided against this step owing to the unhomogenous character of the population.

In February the House of Assembly passed a vote of confidence in Field Marshal Smuts by 92 votes to 40.

The pro-government United Party scored a notable victory in the South West African elections and soon after the party called for the incorporation of the territory in the Union and the confiscation of land held by pro-Nazi Germans. In view of the San Francisco deliberations, however, Field Marshal Smuts did not accede to this request and, following a conference in Pretoria in September, announced the retention of the status quo. At the San Francisco Conference the South African delegation gave notice of the Union government's intention to claim at a later peace conference that its mandate over South West Africa be terminated and that the territory be incorporated as part of the Union of South Africa.

In two by-elections in South Africa the United Party retained the Port Elizabeth seat against an Independent and lost Kimberley to the Nationalists.

Commercial and Economic.—The most important event was the Southern Africa Air Conference in March attended by the British minister for air, Lord Swinton, who arrived in Capetown in a recordbreaking flight of less than three days. The conference set up a Southern Africa Air Transport Council and it was decided by the airline operating countries concerned to establish an operators' association. It also announced plans to inaugurate a landplane service from London to Johannesburg to be operated jointly by the Union government and the British Overseas Airways Corporation. The minister of transport, Mr. F. C. Sturrock, indicated that other countries, including the United States, were to open airlines in South Africa. The internal air services of the South African Airways were resumed in February, gradually expanding later. Work was begun early in the year on national airports at Capetown and Durban and an international airport near Johannesburg which will be an ambitious project.

Big undertakings in the Union completed during the year have been two huge floating docks built at Durban and the Cape for the Admiralty, and the Sturrock graving dock, costing £3,500,000 and the largest in the Southern Hemisphere, opened at Capetown toward the end of September. During the year the Union ports handled large ship repairing and conversion jobs.

Despite food shortages internally, South Africa exported much food to Britain, principally citrus, jams, butter, and cheese. A campaign was started to donate a large quantity of food to Britain in recognition of her war services. A prolonged drought, involving severe cattle and crop losses, affected the Eastern Cape Province in the early summer.

In an attempt to improve the Union's water supply, an expedition led by Senator A. M. Conroy, minister of lands, traveled in July to the Kalahari Desert to investigate a theory advanced by Professor Schwarz some years ago that rainfall would improve by joining the Zambesi and Cunene rivers to form a lake. After extensive traveling in the desert, the expedition found the suggestion impracticable but returned with valuable data for improving irrigation and for the future development of the territory. Continued prospecting in the Free State during the year revealed big possibilities for gold mining; attention has focused on the province for future developments and new companies have been formed.

Military.—After a few weeks' rest in February, the 6th South African Armoured Division rejoined the Fifth Army on the Italian front line and undertook their greatest assault in April with Gen. Mark Clark's men, capturing Montesole and Monte Caprara and entered Bologna. The Springboks ended their war record with the capture of Treviso just before V-E Day. South African casualties for the war totaled 37,962 including 9,027 deaths of whom over 6,813 were whites. By July war factories had turned out South Africa's five millionth grenade and the quarter millionth bomb.

General.—The jubilee of the opening of the Lourenço Marques-Transvaal Railroad 50 years ago was marked in July by a celebration on the border attended by the minister of transport, Mr. F. C. Sturrock, and the governor general of Mozambique, General J. A. Debettencourt.

South Africans accorded a great welcome to Field Marshal Smuts on his return from San Francisco and "Thank you, General Smuts" gatherings were largely attended at Pretoria, Johannesburg and Durban.

The biggest disaster in many years occurred at Pretoria on March 1 when an ammunition magazine exploded, killing 34 and injuring 90. Two air tragedies outside the Union involved returning South African soldiers in July. A Dakota transport leaving Kisumu crashed into Lake Victoria killing all 28 occupants on July 11, and on July 19 a Ventura crashed on landing at Khartoum, killing 16. The shuttle air service repatriating springboks from the Middle East was consequently curtailed, slowing down the homecoming.

Dr. S. F. N. Gie, South African minister to the United States, died April 9, and was succeeded in Washington by Harry T. Andrews.

H. M. MOOLMAN,
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SOUTH AUSTRALIA. See AUSTRALIA.

SOUTH CAROLINA. South Atlantic state, United States; one of the original thirteen states. Population (1940): rural, 1,433,693; urban, 466,111; total, 1,899,804. Land area, 30,594 square miles, divided into 46 counties. Chief cities, with 1940 populations: Charleston, 71,275; Columbia, the capital, 62,396; Greenville, 34,734; Spartanburg, 32,249; Anderson, 19,424.

Chief State Officers, 1945.—Governor Ransome J. Williams; secretary of state, W. P. Blackwell; treasurer, Jeff B. Bates; comptroller, E. C. Rhodes; attorney general, John M. Daniel.

Judiciary.—Chief justice of the state supreme court, D. Gordon Baker; associate justices, E. Ladson Fishburne, Taylor H. Stukes, Claude A. Taylor, G. Dewey Oxner.

Legislature.—South Carolina's General Assembly (Senate, 46 members; House of Representatives, 124) convenes annually on the second Tuesday in January.

Education.—Public elementary schools (1944–45), 3,594; teachers, 11,492; pupils, 364,639; average yearly salary of elementary school teachers, $864. Public senior high schools (1944–45), 491; teachers, 3,589; students, 89,345; average yearly salary of senior high school teachers, $1,269. Education in South Carolina is compulsory for all children between the ages of 7 and 16, inclusive. There are 15 colleges and universities for whites and 5 for Negroes in the state. Total state appropriation for public school education (1944–45), $14,516,642; appropriation by cities and counties (1944–45), $8,733,091. State superintendent of education, J. H. Hope.

Finances.—Following is a statement of South Carolina's finances for the fiscal year 1943–44, the latest report available:

Balance in treasury, beginning of fiscal year 1943–44	$ 47,263,911.45
Receipts, 1943–44	89,153,964.51
Total	$136,417,875.96
Disbursements, 1943–44	83,458,148.23
Balance, beginning of fiscal year 1944–45	$ 52,959,727.73

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Preliminary 1945
Corn (1,000 bu.)	23,398	24,160	24,123
Oats (1,000 bu.)	11,083	15,064	16,023
Wheat (1,000 bu.)	2,238	3,653	2,964
Barley (1,000 bu.)	111	195	185
Rye (1,000 bu.)	156	225	221
Cotton (1,000 bales)	755	864	635
Hay:			
Tame (1,000 tons)	427	410	475
Pecans (1,000 lbs.)	2,422	2,600	3,496
Peanuts (1,000 lbs.)	14,501	25,400	25,000
Sweet potatoes (1,000 bu.)	5,119	7,056	6,200
Tobacco (1,000 lbs.)	90,079	132,250	140,400
Potatoes (1,000 bu.)	2,618	1,464	2,583
Peaches (1,000 bu.)	2,039	2,460	5,760
Pears (1,000 bu.)	128	160	191
Grapes (tons)	1,340	1,200	1,400

SOUTH DAKOTA. West North Central state, United States; admitted to the Union Nov. 2, 1889. Population (1940): rural, 484,874; urban, 150,087; total, 642,961. Land area, 76,536 square miles, divided into 69 counties. Principal cities, with 1940 populations: Sioux Falls, 40,832; Aberdeen, 17,015; Rapid City, 13,844; Huron, 10,843; Mitchell, 10,633; Watertown, 10,617; Pierre, the capital, 4,322.

Chief State Officers, 1945.—Governor, M. Q. Sharpe; lieutenant governor, Sioux K. Grigsby; secretary of state, Mrs. L. M. Larsen; treasurer, E. V. Youngquist; auditor, S. E. Anderson; attorney general, George T. Mickelson.

Judiciary.—The state's supreme court is composed of five members, all of equal rank. The position of presiding judge is one held in rotation among the five judges.

Legislature.—South Dakota's legislature (Senate, 35 members; House of Representatives, 75) meets biennially in odd years on the first Tuesday after the first Monday in January.

Education.—Public elementary schools (latest school year reported, 1943–44), 4,140; teachers, 5,523; pupils, 86,903; average yearly salary of elementary school teachers, $1,067. Public high schools (1943–44), 345; teachers, 1,769; students, 29,415; average yearly salary of high school teachers, $1,560. State teacher training and education courses are offered in 6 state institutions. There are 9 privately owned schools in South Dakota. Education in South Dakota is compulsory for all children between the ages of 7 and 16, inclusive.

Finances.—The following statement of South Dakota's finances for the fiscal year 1944–45 was supplied by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$18,327,728.72
Receipts, 1944–45	32,958,617.91
Total	$51,286,346.63
Disbursements, 1944–45	27,486,473.13
Balance, beginning of fiscal year 1945–46	$23,799,873.50

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Preliminary 1945
Corn (1,000 bu.)	47,634	140,292	119,250
Oats (1,000 bu.)	47,258	92,430	146,759
Wheat (1,000 bu.)	23,082	38,847	53,098
Barley (1,000 bu.)	28,353	28,448	33,615
Rye (1,000 bu.)	6,751	4,508	4,495
Sorghums for grain (1,000 bu.)	1,022	2,091	962
Flaxseed (1,000 bu.)	1,570	2,799	4,785
Hay:			
Alfalfa (1,000 tons)	329	540	530
Tame (1,000 tons)	772	917	901
Wild (1,000 tons)	1,150	2,788	2,354
Potatoes (1,000 bu.)	2,016	2,550	2,904

SOUTH GEORGIA. See FALKLAND ISLANDS.

SOUTH ORKNEYS. See FALKLAND ISLANDS.

SOUTH SANDWICH ISLANDS. See FALKLAND ISLANDS.

SOUTH SHETLANDS. See FALKLAND ISLANDS.

SOUTH WEST AFRICA. A mandate of the League of Nations administered by the Union of South Africa. The area, including the Caprivi Zipfel strip (which gives access to the Zambezi), is 317,725 square miles; in 1942 the population was estimated at 344,564, of whom about 30,000 were whites (two thirds of them South Africans, the rest of German origin). Walvis Bay (374 square miles), actually part of the Cape of Good Hope province of the Union, is an enclave within the mandate (and its chief port), and is administered with it. Windhoek (pop. 20,413) is the capital of South West Africa. Under the mandate (which dates from Dec. 17, 1920), the Union of South Africa was granted full power of administration and legislation over South West Africa as an integral portion of its own territories, with authority to apply the laws of the Union to it. Administration of the mandate is vested in the governor general of the Union, who delegates his powers to an administrator; the latter is assisted by an Executive Committee of 4 members elected by the Legislative Assembly, the latter body having 6 nominated and 12 elected members. The Legislative Assembly has submitted a request for incorporation of the territory as part of the Union; at San Francisco on May 7, 1945, South Africa's delegation to the United Nations Conference on International Organization gave notice of its intention to claim at a later peace conference, when territorial questions are discussed, that the Union's mandate over the territory be terminated and that South West Africa be incorporated as part of the Union of South Africa. Revenue in 1943–44 amounted to £SA1,856,-141, and expenditure was £SA1,046,660. Native reserves (districts) have reached a high state of economic development, and through native councils the people have a voice in the management of their own affairs. The government maintains 2 schools for natives and 1 for colored (half-caste) children, and makes grants-in-aid to 93 mission schools for natives and colored; for white children, there are 55 government and 17 private schools. Stock raising is the principal industry; some 3,000,000 karakul sheep are bred exclusively for their pelts, export of which is of growing economic importance. Dairying is on a relatively small scale. The mandate is rich in mineral deposits. Diamonds constitute 25 per cent of the exports; in 1944 prospecting for diamonds commenced in the 40,000-square-mile Kaokoveld area, in the northwest of the country. Pollucite, a rare metal containing caesium, was first found, in 1945, in the Karibib district. Salt deposits are exploited, and vanadium and tin are mined on a small scale; the copper mine at Tsumeb was closed at outbreak of the Second World War. Exports in 1943 were valued at £SA6,639,618 (overseas, £SA3,913,385; Union of South Africa, £SA2,726,233). The country is economically dependent upon the Union, from which it draws the great bulk of its supplies; imports in 1943 from the Union of South Africa amounted to £SA3,244,382, and those from overseas were valued at £SA71,584 (a total of £SA3,315,966). The administration of the state-owned South African Railways operates the railways within the country (1,584 miles) and the motorbus services (1,774 route miles); one bus line links railhead at Tsumeb with the border of Angola (Portuguese West Africa).

SOUTHERN RHODESIA. See RHODESIA.

SOYBEANS. Within comparatively recent years soybeans have come into their own in the United States and are now rated as one of the country's most important crops from many standpoints. Production in 1945 was estimated by the Department of Agriculture at 196,587,000 bushels, as compared with the 1944 crop of 192,863,000 bushels, and the 1934–43 average crop of 86,732,-000 bushels. Illinois is the leading producing state. Its crop in 1945 was 73,062,000 bushels; Iowa was second with 36,195,000 bushels, and Indiana was third with 28,640,000 bushels.

SPAATZ, Carl A., United States Army Air Force officer: b. Boyertown, Pa., June 28, 1891. Top American commander in the strategic air campaign that crippled German war industry, General Spatz was transferred to the Pacific theater in the summer of 1945 to command the United States Strategic Air Force, newly created to carry out the B–29 raids on Japan. His command embraced Lieut. Gen. James Doolittle's Eighth Air Force and Maj. Gen. Curtis E. LeMay's Twentieth. General Spaatz was graduated from West Point in 1914, and in 1915, transferred to the San Diego Aviation School for flight training. He was among the first 25 army men to win his wings. In the First World War, he served as officer in charge of flight instruction at Issoudon, France; later commanded a pursuit squadron. He holds the Distinguished Service Cross for heroism in action. In 1925, he studied at the Tactical School, and in 1936, attended the Command and General Staff School. He was ordered to Great Britain in 1940 as a special military observer and studied German air tactics during the severest part of the Battle for the British Isles. Soon after the Japanese attack at Pearl Harbor, he was made chief of the Air Force Combat Command. In July 1942, he was ordered to the European theater as American air commander, and in December of the same year, was transferred to the Mediterranean. In April 1943 he was attached to Air Chief Marshal Tedder's staff, as chief of operations and commander of the Northwest African Air Forces. He later directed his air forces for the invasion of Sicily and the Italian mainland. In November 1943, he assumed command of all American air forces in the Mediterranean, and was also named chief of the newly activated United States Fifteenth Air Force. General Spaatz was Lieut. Gen. Eaker's predecessor as commander of the American Eighth Air Force in Britain, and in September 1943, received the Legion of Merit for his record of achievement with that organization. When he became air commander under Eisenhower in January 1944 for the invasion of Western Europe, he was again teamed with Air Chief Marshal Tedder.

SPAIN. A republic of southwestern Europe occupying the greater part of the Iberian Peninsula; area of Continental Spain, 189,890 square miles; with the Balearic and Canary islands, 194,720 square miles. Spain's population in 1940 was 25,877,971 (1943 estimated, 26,491,-166). Ceuta, a fortified post in Africa, opposite Gibraltar, and constituting a part of the Province of Cádiz, had a population (1940) of 59,115. Melilla, also in Spanish North Africa, had a population in 1940 of 77,192. Formerly a constitutional monarchy, Spain was proclaimed a republic

on April 14, 1931, the constitution (Dec. 9, 1931) providing for a president and a Congress of Deputies, elected for four years. On July 17, 1936 a revolt broke out against the government, the insurgents setting up a dictatorial government, at Burgos, with Gen. Francisco Franco as the head. The first civil government was proclaimed on Feb. 1, 1938, and the second on Aug. 9, 1939, later modified on May 20, 1941 and on Sept. 3, 1942. A National Council of 100 members governs the country's single political party—the Falange—assisted by a Fascist political committee of 4 members. Gen. Francisco Franco is listed as leader (caudillo) of the empire, chief of the state, commander in chief of the armed forces, prime minister, and head of the Falange Party. The law of 1942 re-established the Spanish Cortes, charged with preparation and enactment of laws, on Fascist lines. In 1940 the Consejo de la Hispanidad was created to promote spiritual and material intercourse with other countries of Spanish origin, the Spanish-American republics and the Philippines being invited to elect corresponding members. There are 50 provinces in Spain, each with its own assembly. The chief cities, with their estimated populations in 1944, are Madrid (1,140,621); Barcelona (1,108,961); Valencia (508,072); Seville (347,997); Zaragoza (Saragossa) (266,483); Málaga (258,598); Murcia (210,617); Bilbao (208,347); and Granada (171,036).

Religion and Education.—Under the Franco regime Catholicism again became the established state religion. Religious bodies recovered their legal status, and the state again aided in supporting the clergy. The majority of the population adheres to the Roman Catholic Church, which has 9 metropolitan sees and 61 suffragan sees.

Primary education is compulsory and free; according to the latest returns available (1941–42); there were 44,572 public schools with 3,852,897 pupils. Under the Franco regime, it is reported, the church schools which had been closed by the republic were reopened, and religious instruction became compulsory in the state schools. The latest census returns (1943) showed that a total of 10,204,939 persons, including 2,607,112 children, could not read or write. For secondary education there were in 1942, 117 institutions with 170,782 pupils. There were 12 universities (at Barcelona, Granada, Madrid, Murcia, Oviedo, Salamanca, Santiago, Seville, Valencia, Valladolid, Zaragoza, La Laguna) with 34,669 students.

Finance.—The Spanish government's estimated budget for 1945 called for ordinary expenditures of 13,148,722,000 pesetas. (In December 1945 the peseta = approximately $0.0925 in U.S. currency.)

Estimates of income amounted to 10,544,225,000 pesetas.

Expenditures from July 1936 to July 1939 were about 12,000,000,000 pesetas, and income about 3,700,000,000, the deficit thus amounting to more than 8,000,000,000 pesetas. The total state debt on Jan. 1, 1944, was 34,967,346,554 pesetas.

Defense.—According to a decree of July 24, 1939, the army was reorganized into 8 army corps in the peninsula, 2 in Morocco and 2 garrisons in the Balearic and Canary Islands. There was also an independent cavalry division. By another decree published Aug. 30, 1939, supreme military authority was placed in the High General Staff of the army. A new Ministry of Air was created to supervise all matters relating to civil and military aviation. On Aug. 21, 1940, military service was made compulsory for two years, and on Dec. 20, 1943, it was resolved to dissolve the Falangist militia.

The navy consists of 16 destroyers, 4 sloops, 3 torpedo boats, 6 minelayers, 5 submarines, and a number of minor vessels including 7 minesweepers. The air force is an independent service dating from 1939.

Production.—The productive land of Spain comprised nearly 114,000,000 acres, about 90 per cent of the total area, but only about 56,000,000 acres are under cultivation, 60,000,000 acres consisting of pastures and mountains. The country is generally fertile and well adapted to agriculture, and the cultivation of tropical fruits, including olives, oranges, lemons, almonds, pomegranates, and dates. Agricultural products include wheat, barley, maize, oats, rice, hemp, and flax. Grapes are grown in every province; in the southwest the famous sherry and tent wines are made, and in the southeast, Malaga and Alicante. Other products are hazelnuts, esparto, pulse, cochineal (in Canary Islands), silk, honey and beeswax, resinous products, brandy and spirituous liquors. Sugar production in 1944 was estimated at only 140,000 tons, as compared with a normal production of 300,000 tons before the civil war. The wheat harvest in 1944 was estimated at 3,000,000 metric tons, which was 20 per cent higher than 1943, but 15 per cent less than annual consumption. Wheat acreage still remained almost one fifth less than the 1935 figure of 4,500,000 hectares. The barley crop was expected to be a little over 1,500,000 tons, or about 200,000 tons short of annual consumption and almost one fourth less than before the civil war. The rice yield was estimated at more than 200,000 tons, as compared with a normal consumption of 225,000 tons. Before the civil war there was usually an exportable surplus of 75,000 tons. Production of olive oil in 1944 was estimated at 240,000 tons as compared with 400,000 tons in 1943. The 1945 production was estimated at 220,000 metric tons.

Harvesting, planting, and other agricultural operations were handicapped by a continued shortage of machinery, equipment, and fertilizer, and as the principal activity in Spain, agriculture remained a retarding influence on the country's whole economy.

Spain has considerable manufactures of cotton and woolen goods, principally in Catalonia, producing yearly about 90,000 tons of manufactured articles. The 1941 strip of cork was estimated at 32,000 tons, of which about 20,000 tons would be exported, principally to Germany and Italy. No later figures were available in 1945, but the output of cork was known to have declined in 1944 as a result of transportation shortages and the cutting off of trade with central Europe. The 1944 crop of cotton in the Seville area, where 46,160 hectares were planted, was expected to be less than in 1943, when 27,000 bales of ginned cotton (220 kilograms each) were produced.

Manufacturing activity declined in 1944 principally because of power shortage and also because of continued difficulties in obtaining supplies of raw materials abroad. The output of electric power during the first five months of 1945 was substantially below that for the corresponding period of 1944, industrial consumers being limited to about 50 per cent of their 1943 consumption. The important textile industry centered in Catalonia suffered a series of reverses in 1944, and cement production in Spain during the

first nine months of 1944 amounted to 1,111,000 tons, as compared with 1,122,000 tons in the corresponding period of 1943.

Mining.—The country is rich in minerals, which have been only partially developed. Iron, coal, zinc, lead, manganese, quicksilver, silver, salt, sulphur, and phosphates have been found. The iron-ore industry expanded slightly during the first 8 months of 1944, output being estimated during that period at 1,115,565 tons, but a sharp decline occurred during the closing months of the year, exports to Germany then having been suspended. Total production of coal in Spain during the first quarter of 1945 amounted to 2,735,000 metric tons, compared with a total of 2,810,604 metric tons during the corresponding period of 1944. The production of zinc ore declined also, 43,261 tons having been produced in the first eight months of 1944, while production during the entire year of 1943 totaled 71,891 tons. The output of lead ore and metal, of fluorspar, and of mercury declined during 1945 as did that of most other nonferrous metals.

Foreign Commerce.—According to *Foreign Commerce Weekly* for April 21, 1945, total exports during the first half of 1944 amounted to 1,178,626 tons, valued at 1,641,278,864 pesetas, compared with 943,116 tons, valued at 1,474,423,160 pesetas during the first half of 1943. Total imports during the first half of 1944 declined to 865,170 tons from 886,551 tons during the first half of 1943. After trade with the Axis was cut off, an abrupt drop in both volume and value of imports and exports occurred. No official statistics were available, but it was estimated that foreign trade declined during the second half of the year by at least 25 per cent.

Communications. — Standard-gauge railways were placed under government jurisdiction in 1941, private management to be replaced by a government administrative council. In 1942 there were 10,805 miles of railways. On Feb. 1, 1941, the Spanish railways of normal gauge (22 main lines totaling 7,970 miles) passed into state ownership, and are controlled by a government board. At the end of 1940 there were 3,500 locomotives, 4,500 passenger cars, and 89,000 freight cars in service. In 1940 railways carried 168,000,000 passengers and 40,500,500 tons of freight. There are 830 miles of tramways. Madrid has 16 miles of subways and Barcelona 10.5 miles. In 1942 there were 8,963 post offices, and 26,345 miles of telegraph lines. In 1942 there were 3,385 telephone centrals and 364,923 telephones in service. Highways and roads had a total mileage of 77,574. The passenger and mail air services are well developed.

Merchant Marine.—On Jan. 1, 1943, the merchant fleet included 925 vessels with a gross tonnage of 1,019,884. The chief maritime centers are Barcelona, Bilbao, Seville, and Cádiz.

Principal Events, 1945.—The defeat of Germany in May 1945 by the Allied powers increased the steadily mounting difficulties of the Franco government of Spain by eliminating the regime's chief external political support, and at the same time destroying a principal outlet for the country's economic products. Foreign trade fell an estimated 25 per cent. Because of a shortage of materials, power, and transportation, industrial activity ebbed; the prices of bread, sugar, olive oil, potatoes, milk, wine, shoes, and clothing rose sharply; and wages declined to new levels. It was reported in September that in the textile industry no worker received more than 40 pesetas ($3.70 or less) a week; but profits, augmented by a flourishing black market, continued to soar. Construction activities, which in 1944 had remained at about the same level as in 1943, declined in 1945, as did industrial and agricultural production. Popular dissatisfaction grew under the continued suppression of civil rights and the deterioration of economic conditions, and arrests and executions increased. Madrid reported the execution of 16 "Communist-terrorists" on February 26, and on September 8 a third wave of political arrests within the year was reported to be sweeping Madrid, conservative estimates placing the number jailed at more than 500 within 10 days.

Externally, the country's relationships grew more difficult. Dr. Juan Negrin, premier of the former Spanish republic, stated on January 2 that the United Nations owed it to the Spanish Republicans, who first fought fascism, to break with the Franco government. On May 22 reports from Lausanne, Switzerland, stated that Prince Juan, pretender to the Spanish throne, had called on Franco to resign in order that the monarchy might be restored. On the following day the Spanish government, which had been representing Japanese interests in other countries, was forced to protest Japanese atrocities in the Philippines, where the latter were reported to have destroyed 80 per cent of Spanish property and to have killed 162 Spanish citizens. The Spanish government asked diplomatic satisfaction from the Japanese, who denied the atrocities. On March 30 the resignation of the duke of Alba, Spanish monarchist, as Spain's ambassador to Great Britain, was confirmed. Spain broke off relations with Japan on April 11. In return for a pledge made by the United States granting Spain facilities to deliver diplomatic pouches to Bern, Switzerland, the Spanish government on April 18 forbade German aircraft of any type to land on Spanish territory, thereby impeding the flight to Spain of war criminals wanted by the Allies. On April 29 it was reported from Barcelona that a meeting of Carlist Party members had openly defied the Franco regime, pledging loyalty to the "Catholic Spain of God, country, and king." Spain severed relations with Germany on May 7, the Nazi government of that country having virtually ceased to exist (it surrendered to the Allied powers on the following day). The Foreign Affairs Committee of the French Consultative Assembly on May 25 proposed that Franco be asked to resign by the Allies acting in concert, in order that a democratic government might be formed in Spain; and that, if he refused, relations between France and Spain be severed.

In an effort to counteract the cumulative effect of these events, both within and outside of Spain, the government announced on May 5 that freedom of speech and worship and the right of habeas corpus had been granted Spaniards, and on May 7 Franco announced that he had given the country a "bill of rights." This bill gave Spaniards freedom of speech as long as they did not criticize the "fundamental principle" of the Falangist state; granted freedom of assembly for "lawful purposes," and accorded freedom of "religious belief," but barred all religious ceremonies except Catholic; and set up a form of habeas corpus. On June 16, Franco announced that municipal elections would soon be held in Spain, followed by provincial and national elections, and by the formation of a Council of the Realm, which would decide upon his successor in the event of necessity. Addressing the National Coun-

cil of the Falange in Madrid on July 17, Franco stated that he expected to be succeeded by "the traditional monarchy."

Several countries severed relations with Spain during the year: Guatemala, on January 23; and Panama, on June 29. On June 19 the United Nations Conference at San Francisco voted to bar the Franco government permanently from membership; and on August 2 the Berlin Conference held by President Harry Truman of the United States, Prime Minister Clement R. Attlee of Great Britain, and Premier Joseph Stalin of the Soviet Union, issued a communiqué declaring that the Franco regime, because of its "close association with the aggressor states," was not wanted in the United Nations. This declaration was rejected as "arbitrary and unjust" by the Spanish government, which cited Spain's "peace-loving spirit" and "goodwill toward all peoples." British Foreign Secretary Ernest Bevin, outlining his government's foreign policy on August 2, justified Great Britain's noninterference policy with regard to Spain, stating that the sort of regime desired by Spain was a question for Spaniards alone to decide, and that foreign intervention would only strengthen Franco. President Truman, however, strongly denounced Franco and his government in a press conference on August 23, at which he was reported to have recalled the Berlin Conference which barred Spain from the United Nations and to have added: "None of us likes Franco or his government." On September 4 it was announced from Paris that an agreement had been reached by France, Great Britain, the United States, and the Soviet Union calling for the expulsion of Spanish troops from Tangier, which Franco had occupied in 1940 over the protests of Great Britain and the United States. In Mexico City, on August 26, completion of the first Spanish government in exile was announced by its president, Diego Martínez Barrio, who appointed José Giral premier in disregard of two mandates from Spanish Republicans calling for the reappointment of Juan Negrin. The new Republican regime, excluding Communist representatives but supported by them, as it was by Negrin himself and by all major republican factions, was soon recognized by Mexico, Guatemala, and Panama. On September 28, Bolivia severed relations with the Franco government in Madrid.

SPANISH COLONIAL EMPIRE, in Africa, comprised of Spanish Guinea, including Río Muni, the island of Fernando Po, and four smaller islands; western Sahara, including Río de Oro, Adrar, and Ifni; and Spanish Morocco. Total area, 128,570 square miles; total population, 890,000 (est. 1939).

Spanish Guinea.—Río Muni, on the mainland, and the nearby islands of Fernando Po, Annobon, Corisco, Great Elobey, and Little Elobey. Total area, 10,124 square miles; total population, 120,000 (est. 1939). Río Muni, on the west coast of Africa just north of the equator, is bounded on the west by the Gulf of Guinea, and on the north, east, and south by French Equatorial Africa, the territory of Cameroun being directly to the north, and Gabon to the east and south.

Western Sahara.—Río de Oro, known also as Spanish Sahara, is on the northwest coast of Africa, between latitudes 20° and 30° N. In addition to Río de Oro, Western Sahara includes various districts within Rio de Oro known as the Adrar (Berber for uplands) regions; and Ifni, a tiny strip of coast just north of Río de Oro. Total area of Western Sahara, 110,036 square miles; total population, 110,038 (est. 1939).

Spanish Morocco. — See MOROCCO — *Spanish Zone.*

SPARS. See WOMEN'S RESERVE, U.S. COAST GUARD RESERVE.

SPECIAL LIBRARIES ASSOCIATION. This association was founded in 1909 as an international organization of librarians and information experts who serve manufacturing concerns, banks, corporations, law firms, newspapers, advertising and insurance agencies, transportation companies, research organizations, museums, hospitals, business branches and other departments of public and university libraries, government bureaus, associations, and other organizations in the fields of business, medicine, the sciences, technology, social welfare, and the arts. Membership approximately 4,000. President, Herman H. Henkle; executive secretary, Kathleen B. Stebbins. Headquarters, 31 East 10th Street, New York City 3. Publications: *Special Libraries,* published monthly, September to April, with bi-monthly issues from May to August; sponsored periodical, *Technical Book Review Index,* issued ten times a year, September to June. *Special Library Resources,* vol. 1, was published in 1941, with three additional volumes planned for 1946 publication. Other recent publications are: *War Subject Headings for Information Files; Index to American Petroleum Statistics; Handbook of Commercial, Financial and Information Services; Source List of Selected Labor Statistics; Classification and Cataloging of Maps and Atlases; A List of Subject Headings for Chemistry Libraries.* A convention is held each year, usually in June. The 1946 convention was scheduled for Boston, Mass.

KATHLEEN B. STEBBINS,
Executive Secretary, Special Libraries Association.

SPELMAN FUND OF NEW YORK. This fund was incorporated in 1928 with a principal fund of $10,000,000. The trustees of the fund have power to use the principal as well as income to carry on its purposes. The charter provides that the fund "is formed for exclusively charitable, scientific and educational purposes, including the advancement and diffusion of knowledge concerning child life, the improvement of interracial relations and co-operation with public agencies." Since 1930, the fund's program has been directed toward co-operation with public agencies for the advancement of public administration. Its interest in this field is expressed through support of activities of public and quasi-public agencies engaged (1) in making significant results of current administrative experience generally available to public officials; (2) in developing improved methods and putting them to practical use; and (3) in experimenting with new administrative devices and procedures under actual operating conditions. The chairman of the board of trustees is Charles E. Merriman. Headquarters: 49 West 49th Street, New York 20, N. Y.

CONSTANCE MURDOCH,
Secretary, Spelman Fund.

SPITSBERGEN. See SVALBARD.

SPORADES, Southern. See DODECANESE ISLANDS.

SPORTS IN 1945. Opening under handicaps imposed by the constrictions of a fourth year of war, sports in 1945, under the impetus of a postwar boom beginning with the cessation of hostilities in Europe in May, exceeded all expectations. Before it ended, the year proved to be,

in many ways, the biggest and best in sports annals. Horse racing, eliminated from the picture altogether at the end of 1944, skyrocketed to unprecedented popularity in 1945, the fantastic sum of $1,306,514,314 being wagered through the pari-mutuel machines, as compared with the $1,126,308,645 wagered in 1944. This total did not include the uncounted millions bet privately through bookmakers, which is thought to have raised the total to well over $1,500,000,000. Baseball, completing in October a very remarkable season, broke all previous records by attracting to both of its hotly contested pennant races a total of more than 11,000,000 paid admissions and in a seven-game world series topped all previous records with $1,592,454 in gate receipts. Football, golf, boxing, tennis, and practically all other sports showed a similar revival of activity as they emerged from the shadows of war.

Horse Racing.—On May 12, only a few days after the surrender of Germany, the government lifted the ban on horse racing. Narragansett Park, at Pawtucket, R.I., was the first track to reopen, and activities on the turf zoomed throughout the 18 states in which races were held. There were 221 fewer racing days than in 1944, but the 17,000,000 fans who turned out during the year exceeded the previous year's betting record by more than $200,000,000. Of the total sum of $1,306,514,314 wagered through pari-mutuel machines in 1945, state treasuries received $65,484,121 in taxes. In New York State alone, the sum of $450,663,190 was bet at the tracks, of which amount $30,333,299.02 went to the state treasury. The first $5,000,000 betting day in history was recorded at Belmont Park, Long Island, N.Y., on September 22, and eight other days registered totals of over $4,000,000. Among other records broken during the year were attendance totals at three tracks: Belmont, Aqueduct, and Jamaica, where a collective all-time high of 4,623,123 admissions were recorded.

For the second successive season, a filly carried off top honors when Louis B. Mayer's sensational Busher, was proclaimed "horse of the year." A new racing stable, the Maine Chance Farm of Mrs. Elizabeth N. Graham of New York, came into prominence as the leading money-winning stable, recording takings of $503,985 on an investment total of $299,700. The veteran trainer, Tom Smith, was credited with the new stable's success.

In the field of harness-racing, a total of $40,000,000 was wagered during 1945, the return in taxes to New York State alone amounting to $2,126,966. An all-time high was registered at Roosevelt Raceway, Westbury, Long Island, on August 8, when 17,000 fans wagered the sum of $481,000. A total of $28,000,000 was bet at this track during the year. Titan Hanover, three-year-old trotting colt owned by Maj. Elbridge T. Gary and E. Roland Harriman, won the noted Hambletonian in straight heats, but he was so outstanding a contender that the public was not allowed to bet on him.

Baseball.—One of the year's most sensational developments in baseball was the announcement, made on January 26, that Col. Larry MacPhail, retired head of the Dodgers, had formed a three-man syndicate which had bought the great Yankee American League baseball team of New York. Dan Topping, professional football promoter, and Del Webb, an Arizona contractor, were his associates. The trio purchased this vast and most successful of all baseball organizations from the heirs of the late Col. Jacob Ruppert for $2,800,000.

Another major development was the announcement, made on April 24 by the owners of the two major leagues, that Albert B. (Happy) Chandler, United States senator from Kentucky, had been chosen commissioner. Senator Chandler succeeded Kenesaw Mountain Landis, who had autocratically ruled the world of baseball from 1921 until his death in November 1944.

The loss of many baseball stars and of much promising baseball material to the armed services brought the quality of baseball playing to a markedly low level during 1945, but this factor failed to dampen the enthusiasm of the fans. On the contrary, the two major leagues reported the breaking of all attendance records, a total of 11,375,185 being attracted to the gates, a figure exceeding the 1944 record by almost 2,400,000. Steve O'Neill's Detroit Tigers scored highest in attendance, drawing 1,280,321.

In the American League, the Tigers, who lost to the St. Louis Browns in 1944, defeated the latter and won the league championship ahead of the Washington Senators. The homers batted by Hank Greenberg, newly released from the army, and the whirlwind pitching of Hal Newhouser, winner of 25 games, helped the Tigers climb to first place.

In the National League, the Cardinals were expected to win their fourth successive pennant, but were overtaken first by the New York Giants, then by the Brooklyn Dodgers, and finally by Charlie Grimm's Chicago Cubs, who were reinforced by the late addition of Hank Borowy, ace Yank pitcher purchased from MacPhail for $100,000. Hank lost only 2 games and won 11, bringing a brilliant, last-minute victory to the Cubs.

The world series was notable for some of the worst playing on record, and also for some of the finest. The best-pitched game in the history of world series occurred when Claude Passeau of the Cubs allowed the Tigers only one hit. Two men got to first—one on a pass—but neither reached second. The series ended with the seventh game, when Newhouser scored for the Tigers, giving Detroit the world championship at 9 to 3.

Shortly after the series ended, it was announced that Billy Southworth, eminently successful Cardinals manager, would officiate in the same post for the Boston Braves. Phil Cavarretta of the Cubs was awarded the most-valuable player prize in the National League, and Newhouser, for the second successive year, won similar distinction in the American League.

A new chapter in baseball history was opened when Jackie Robinson, Negro shortstop of the Kansas City Monarchs, was acquired by the Dodgers for their International League farm at Montreal. This development was widely hailed as paving the way for the end of racial discrimination on the diamond.

Football.—As the first major sport to enjoy fully the benefits of peace, football went over the top in spectacular fashion. An aggregate of 103,000 fans saw Southern California defeat the University of California at Los Angeles, and on the same day, 100,000 watched the West Point cadets sink the Navy, 32 to 13. Col. Earl Blaik's Army team scored top honors for the second successive year, and was rated one of the greatest elevens in the history of collegiate football. Its two touchdown stars, Felix (Doc) Blanchard and Glenn Davis,

were ranked among the best players on record. Another team which held the limelight was the formidable Alabama eleven, chosen in the Associated Press poll as runner-up against the Army, ahead of the Annapolis team. Indiana took possession of the Western Conference championship for the first time in 46 years, under the guidance of Alvin (Bo) McMillin, who was named outstanding coach of the season. College football attendance reached 7,262,147, topping by 35 per cent the 1944 attendance figures.

Pro football recorded the surprising decline of the Chicago Bears, and the spectacular emergence of the Cleveland Rams, who climbed from obscurity to top place in the western half of the league. In the east, the Washington Redskins carried off top honors, but succumbed to the Cleveland Rams in the play-off for the league title honors by the score of 15 to 14. The latter game was watched by a record-breaking crowd at the Municipal Stadium in Cleveland, 32,178 fans paying $164,542 into the till in spite of near-zero weather. Bob Waterfield of the Rams was voted the year's foremost pro player. A sensation was caused toward the end of the season when Dan Topping, having become a member of the newly formed All-America Conference, announced that his Brooklyn Tigers, merged for the season with Boston, would appear the following fall in the Yankee Stadium as the New York Yankees. The 10 teams in the National Football League played to 1,918,631 persons in the 1945 fall season, an average of 28,636 spectators for 68 games.

The 1945 college football season closed with the playing on New Year's Day, 1946, of the so-called bowl games. In the major one of these games (the Rose Bowl game played before 94,000 spectators, at Pasadena, Calif.) the University of Alabama, making its sixth appearance in the bowl, defeated the University of Southern California, 34 to 14. It was Southern California's first defeat in nine Rose Bowl games. Harry Gilmer, Alabama's brilliant 19-year-old back, was the star of the game. Alabama now has a Rose Bowl record of 4 victories, 1 defeat, and 1 tie. In the Sugar Bowl game, played at New Orleans, Oklahoma A. & M. College defeated St. Mary's, 33 to 13, before a record crowd for the game of 75,000. The University of Texas defeated the University of Missouri in the Cotton Bowl game at Dallas, Texas, 40 to 27. A last minute touchdown gave the University of Miami a victory over Holy Cross, 13 to 6, in the Orange Bowl game at Miami, Fla. The University of Georgia defeated the University of Tulsa, 20 to 6, in the Oil Bowl game played at Houston, Texas. The annual East-West all-star charity contest, played at San Francisco, ended in a 7 to 7 tie. Wake Forest defeated the University of South Carolina, 26 to 14 in the Gator Bowl at Jacksonville, Fla.

Golf.—Byron Nelson won top ranking for the second successive year in spite of the fact that competition was much keener, many of golf's topnotchers having returned from service. Out of 30 major tournaments in which he competed, Nelson won 18, taking $64,600 in war bonds, a record-breaking figure in golf earnings. He maintained the remarkable average of 67.5 strokes per 18-hole round in winning the All-American open, the national Professional Golfers' Association, the Canadian Professional Golfers' Association, and the international four-ball best ball championship. In an Associated Press poll, Nelson was acclaimed No. 1 athlete of the year.

Mrs. Mildred (Babe) Didrikson Zaharias lost the Western amateur title in women's golf to Miss Phyllis Otto, but retained her Western open title, and was voted No. 1 woman athlete in the Associated Press poll. Lieut. Patty Berg of the Marines won the All-America title, and Mrs. Estelle Lawson Page of Chapel Hill, N.C., captured the North and South title for the seventh time. The New York State championship was bagged by Miss Kathleen Byrne of the Westchester Country Club.

Boxing.—Every world champion, including Joe Louis, heavyweight king, was discharged from service in 1945, and the season of 1946 promised to shatter all boxing records. Billy Conn was signed to meet Louis in a heavyweight bout June 1946, and meanwhile boxing showed remarkable vitality. Promoter Mike Jacobs grossed over $2,000,000 at Madison Square Garden with 42 shows. The Rocky Graziano-Red Cochrane bout, the Tami Mauriello-Lee Oma tilt, and the Graziano-Harold Green fight each topped the $100,000 mark.

Track and Field.—Gunder Haegg, world-famous Swedish track star, experienced a surprising series of reversals on paying his second visit to the United States, where he achieved only one victory. His lone triumph was over Forest Efaw in the one-mile event, which Haegg won in 4:16.7. Back in Sweden, however, Haegg's prestige rose again considerably when he defeated Arne Andersson, holder of the world's record for the mile, listed at 4:02.4, clipping this mark to 4:01.4. Jim Rafferty of the New York Athletic Club established his claim to the title of outstanding track figure for the year by winning nine one-mile events in a row.

Tennis.—Sgt. Frank Parker, 1944's ranking figure in amateur tennis, retained his national crown in 1945 at Forest Hills, Long Island, by defeating William Talbert in the finals, without the loss of a set, 14-12; 6-1; 6-2. The men's doubles were won by Talbert and U.S. Navy Lieut. Gardnar Mulloy.

Mrs. Sarah Palfrey Cooke of Los Angeles regained her national crown among the women, vanquishing Miss Pauline Betz of Los Angeles, who had reigned for three years. Miss Louise Brough and Miss Margaret Osborne retained the women's doubles championship.

Basketball.—A total of 442,293 basketball fans paid to see 26 college double headers at Madison Square Garden, New York. The Oklahoma Aggies, inspired by their 7-foot center, Bob Kurland, humbled De Paul, 52 to 44, in the Red Cross play-off. In the Western Conference, Iowa came out on top, while in the Eastern Intercollegiate League, Pennsylvania emerged victor.

Swimming.—One world mark and nearly 30 national records were broken in swimming. Richard Hough's world record for the 220-yard breast stroke of 2:22 was reduced to 2:21 by Joseph Verdeur of the Bainbridge Naval Training Center. Alan Ford of Yale cut the 100-meter mark from 0:57 to 0:55.7, and the 100-yards free style from 0:49.8 to 0:49.4. Miss Ann Curtis of San Francisco, in addition to clipping the women's short-course time for 400 yards free style from 5:02.2 to 5:00.9, won six national free style championships, broke many other records, and was acclaimed the year's outstanding swimmer.

Hockey.—Every team in the National Hockey League in 1945 toppled its previous attendance record. One of the major upsets of the year occurred when the Detroit Red Wings were beaten by the Toronto Maple Leafs, who were only third in the regular season, in the contest for the Stanley Cup, symbol of world championship. The

Montreal Canadiens turned up as victors in the regular season, the Red Wings finishing second.

Yachting.—Like most other sports, yachting experienced an extraordinary revival. Race week attracted 198 starting craft at the Larchmont Yacht Club; and Great South Bay and Manhasset Bay clubs likewise reported renewed activity on a wide scale.

Chess.—Highlighting the year's activities in chess was the match conducted by radio between the Soviet Union and the United States, in which the Russians scored a decisive victory, 15½ to 4½.

Soccer.—In this field, the Brookhattans of the Bronx, New York, piled up victories in the American League, the National Cup competition, and the Lewis Cup series, emerging as the outstanding team of the year.

SPRUANCE, Raymond Ames, United States naval officer: b. Baltimore, Md., July 3, 1886. Admiral Spruance directed United States Fifth Fleet operations against Japan from April 1944 until V-J Day. He was in overall tactical command of the amphibious invasion of Okinawa Island on April 1, and on June 2, established a temporary headquarters on Guam. On November 8, Admiral Spruance was named deputy commander in chief of the Pacific Fleet, and of Pacific Ocean areas, and on November 20, was appointed commander in chief, succeeding Fleet Admiral Chester W. Nimitz. On Dec. 28, 1945, it was announced that Admiral Spruance had been selected to head the Naval War College. In June 1942, Admiral Spruance took part in the Battle of Midway as junior task force commander under Admiral Nimitz. After a period as Nimitz's chief of staff, he returned to active sea duty, and in November 1943, directed the Allied drive on the Gilberts. He had overall command of the American invasion of the Marshall Islands, Jan. 30, 1944; on February 16-17, sent his forces against Truk in the Carolines; and in late March, had tactical command of the assault on Japanese positions in the Palau Islands. In June, his task fleet inflicted heavy losses on the Japanese in an engagement between the Philippines and the Marianas. A graduate of the United States Naval Academy, he holds the rank of full admiral.

STALIN, Joseph, Russian statesman: b. Gori, Tiflis Province, Georgia, 1879. Premier of the USSR since May 1941, and supreme commander of all Soviet armed forces throughout the Second World War, Joseph Stalin continued to take a dominant role in international politics in 1945. On April 21, he signed a 20-year pact of "friendship, mutual assistance, and postwar collaboration" with the Polish provisional government. He stated in his V-E Day speech to the Russian people on May 9 that Soviet Russia did not intend "to dismember and annihilate Germany." On May 26, Stalin met with Harry Hopkins, President Truman's personal envoy, for a series of talks on the Polish controversy, and the procedural deadlock then delaying action at the San Francisco World Security Conference. He was promoted to the newly created military rank of generalissimo on June 27 "for service to the motherland." In late June and early July, he conferred with China's Premier T. V. Soong, and on the 17th of the latter month, met in Berlin with President Truman and Prime Minister Churchill to determine the future of defeated Germany. On September 2, Stalin followed his proclamation (August 23) of Soviet victory in Manchuria with the announcement that the Soviet would regain the southern half of Sakhalin Island and the Kuriles, lost to Japan in 1904. See also UNION OF SOVIET SOCIALIST REPUBLICS; WORLD POLITICS; WORLD WAR, SECOND.

STANDARDS, National Bureau of. In reviewing the work of the National Bureau of Standards during 1945, it should be remembered that 90 per cent of its activities have been directly connected with the war. As a great many of its research projects are at present included in the restricted, confidential, or secret classifications, the following description is necessarily incomplete.

The regular appropriation made by the Congress for the support of the bureau during the fiscal year ended June 30, 1945, was $2,924,500, with a supplementary appropriation of $200,000 for special war research during the last 5 months of the year. Approximately $7,000,000 in transferred funds and reimbursements was made available by the army, navy, National Defense Research Committee, National Advisory Committee for Aeronautics, and other agencies for projects in which they were interested.

The staff throughout the year numbered approximately 2,300. From 50 to 60 research associates were stationed in the bureau's laboratories, representing about 15 national engineering societies and trade associations. Dr. Lyman J. Briggs, director of the bureau since 1933, retired on November 5, after 49 years in the technical work of the government. He was succeeded by Dr. Edward U. Condon, associate director of Westinghouse Research Laboratories. Dr. Addams S. McAllister, assistant director in charge of commercial standardization, retired on February 28, after 24 years service at the bureau.

The bureau's grounds remain a prohibited zone under the jurisdiction of the commanding general, Military District of Washington. • An ordnance laboratory is being constructed immediately north of the present control testing laboratory, and numerous alterations and additions have been made to existing structures.

Radio.—The bureau's standard frequency radio broadcasts have been improved by announcements of actual times of day. Information on characteristics of radio transmission and on assignment of frequencies has been made available to agencies dealing with postwar planning in this field.

The Joint (Army-Navy) Communications Board transfers funds for the financial support of the bureau's radio propagation laboratory. This work is, however, of primary importance in every kind of radio communication; the board, therefore, recommended that after Dec. 31, 1945, it be paid for through appropriations made directly to the bureau.

Aircraft Storage Batteries.—Storage batteries for aircraft use are being studied in a special laboratory recently completed. Operating conditions are exceptionally severe, and previous tests have not been truly representative. An important part of the program involves substitutes for rubber as battery separators.

Improving Power Factor of Test Circuits.—By using capacitors to improve the power factor of the test circuits, the limit for tests of current transformers has been raised from 10,000 to nearly 14,000 amperes at 60 cycles.

American-Made Chronometers.—A large number of American-made chronometers have been tested. Their performance was such that it was necessary to know the 24-hour interval to 0.01 second before they could be properly standardized. These American instruments were superior in

almost every respect to the foreign-made chronometers, heretofore in universal use in this country.

Unification of Screw Thread Systems.—The bureau was represented at a conference on screw threads held in Ottawa during September. A cooperative research has been started by Canada, Great Britain, and the United States, which it is hoped will result in unifying the screw thread systems in use in these countries.

Substitute Automobile Fuels.—Many tests of substitute fuels for automobiles show that with alcohol the engine develops more horsepower by several per cent than with gasoline despite the fact that the heat available per pound from alcohol is only two thirds as much as from gasoline. The volumetric efficiency with alcohol is higher, because on vaporization in the manifold the alcohol cools the air more than does gasoline. Tests of substances to be added in small quantities to gasoline to increase mileage, confirm previous conclusions that these additives are without any measurable effect.

Refrigerator Equipment.—Plans have been made to improve the bureau's facilities for testing and developing refrigeration equipment, since a great many requests for work of this kind are received from the Office of the Quartermaster General. It seems probable, likewise, that there will be increased interest in this subject on the part of civilians, the advantages of "deep freezing" in the storage of food now being well recognized.

Adsorbing Materials.—Adsorbents, such as bone char, are being studied with the financial support of 15 large companies in this country and 5 Canadian sugar refineries. An extensive bibliography of the scientific literature on adsorbing materials has been published; it is believed to be the first of its kind in a field that is important to several major industries.

Diamond Dies.—As the result of many experiments in the cutting of diamond dies used for drawing very fine wire, it was found that when a 5,000 volt electric arc is formed at the contact between the diamond and the revolving lap, the cutting rate is at least doubled. This is the only real improvement that has been made in cutting diamonds since the art was first practiced hundreds of years ago. It is applicable to industrial and to ornamental diamonds and to diamond saws.

Aviation Lights.—Fourteen sets of filters for controlling the colors of aviation lights have been standardized. They were prepared by one of the large glass companies with the technical assistance of the bureau. Ten sets have been delivered to the Army Air Forces, and four to the Civil Aeronautics Administration.

Chemical Samples.—The distribution of standard chemical samples continues to be one of the bureau's most direct services to industrial and governmental laboratories. Samples of pure hydrocarbons and of paint pigments (color and tinting strength) are now included, as well as alloy steels for spectographic analysis.

Hospital Paints.—The bureau has co-operated with the War Department in developing a color scheme and in selecting paints for the exterior and interior of general and convalescent hospitals. For the interiors, use has been made of soft-toned, bright, cheerful pastel colors that create an atmosphere of restfulness. The kind of paint used depends on the surface and location—flat oil paints, flat emulsion paints, and gloss enamels all find their places. Standard color chips were prepared and sent to the various Service Commands, and a representative of the bureau is visiting the hospitals to assist the post engineers in carrying out the work.

Aids to Aviation.—An improved flowmeter, easily manufactured from noncritical materials, was developed for the Bureau of Aeronautics, Navy Department. It is an important part of the field test sets that are used to check the oxygen equipment on airplanes. For the same bureau, a revised data chart has been prepared giving important information on the torsional strength of aluminum alloy tubing, so largely used in aircraft construction.

Over 200 synthetic lubricants for aircraft instruments have been tested to learn whether or not they could be substituted for porpoise jaw oil. Although no wholly satisfactory synthetic lubricant is commercially available, some have given reasonably good performance if the temperature does not go below −20° F, and there is reason to believe that this limit will be lowered so that even severe service requirements can be met.

A distant-reading indicating device has been designed and constructed for measuring the forces required to actuate the controls of an airplane. It is important that these forces be confined within rather narrow limits if performance is to be satisfactory. The instrument makes use of a spring interposed between the control and the pilot's grip which deflects proportionally to the force applied. An electrical transmitter and indicator are connected to the spring, so that the readings can be noted visually or recorded photographically at any convenient location.

A long range research program has been started with the support of the Navy Department, to determine the compressive strength of airplane reinforcing members, such as channels, angles, T- and Z-sections, etc., that are frequently formed by extruding the heated metal under very high pressure through dies. The results of the first part of this work, on buckling stresses, have been prepared for publication.

Noise Suppression.—Interest in the suppression of unnecessary noise in buildings and on city streets has continued, and it is now generally realized that exposure to intense noise is definitely harmful. In co-operation with the National Aeronautics Association, a noise-level survey was made in the vicinity of the municipal airport in a Florida city. In this instance, there was no question that the noise was objectionable, but because of the location of the airport, the only way to lessen the noise is to eliminate all unnecessary flights. The selection of a proper site for an airport, bearing in mind the future growth of the community, is a matter of great importance and should receive more careful consideration than appears to have been given to it in the past.

New Binocular.—A new 6 x 42 binocular, the body of which is made entirely of plastic, was designed in co-operation with the Army-Navy Munitions Board, and is now in production. It is of the fixed focus, fixed interpupillary distance type, thus eliminating the necessity for any adjustments, and is waterproof at a depth of 100 feet. It likewise is resistant to fungi and corrosion, is compact, and weighs less than the standard binocular. It seems to be ideally suited to combat service, and is, in fact, a general-purpose instrument.

Mass Spectrometer Analyses.—The mass spectrometer is being used with success in the analysis of liquid and gaseous materials that constitute the basis of synthetic rubber manufacture. This elaborate and highly specialized instrument makes possible quick, complete, and accurate analyses of

samples of butadiene, styrene, and other monomers submitted by plant operators through the Rubber Reserve Company. A great deal of interest has been shown by industrial laboratories in the use of the mass spectrometer in their own work, and a short article on its advantages and limitations, such as high first cost and the necessity for a staff of trained operators and computers, has been published.

Rubber Research in Brazil.—The installation of equipment in the rubber laboratory established by the Brazilian government at the mouth of the Amazon, has been completed and the research program has been started. A tree has been developed that combines a strong root system, high rubber yield, and resistance to the leaf disease prevalent in South America. It is expected that this tree will be artificially cultivated, somewhat as is done in the Far East, but on smaller tracts of land, each of which will be leased to specially trained native families. This should ultimately place Brazilian rubber on a competitive footing with the natural rubber of the Pacific and, in certain fields, with the synthetic rubber of the United States. The member of the bureau's staff who was loaned to the Brazilian government to inaugurate the project, returned to the bureau in October 1944.

Textile, Paper, and Leather Research.—The research associateship of the Textile Foundation at the bureau has been discontinued. The executive offices of the foundation will remain at the bureau, but the laboratory work is now carried on at Princeton, N.J., where a building was specially equipped for the purpose.

Warfare in the tropics introduced many unusual problems. The bureau is studying means for preventing the deterioration of textiles and for producing special papers that will preserve goods during transit and storage in hot, damp locations. The waterproofing of army boots has been studied and a new protective treatment has been developed in co-operation with the Chemical Warfare Service, and the Office of the Quartermaster General.

Calibrating Carbon Arc Lamps.—A method of calibrating the hundreds of carbon arc lamps used in commercial laboratories for testing color fastness of dyed textiles has been developed. A special dyed paper made in the bureau's paper mill, is exposed for a definite length of time in the lamp to be calibrated and is then compared visually with a strip of the same paper that has been exposed in steps of 16, 18, 20, and 22 "standard fading hours" in the bureau's reference standard lamp. Books of these papers, with directions, have been distributed to interested laboratories.

Welded Ship Failures.—The bureau has examined many failures of welded ships, and it is evident that the presence of notches, because of faulty design or construction, is an important contributing factor. Steps must be taken to control either the design or material, or both. Changes in design have been made and now the problem is to insure the use of steels of low notch sensitivity. The current research program calls for impact tests on a large number of specimens at various temperatures.

Metal Corrosion.—Outdoor exposure tests of metals have been continued at the bureau's seacoast site and have yielded important information on the corrosion resistance of aluminum, magnesium, and the light alloys used in aircraft construction. A set of full-sized wings made of a magnesium alloy were among the specimens that have been subjected to tidewater attack in a marine atmosphere. Stress-corrosion tests, in which the specimens are bent back and forth within their elastic limit or are loaded with dead weights, have been conducted on magnesium at the same site, with the expectation that means will be found for improving its low resistance to corrosive attack—at present one of its major disadvantages.

The widely-used salt-spray test for determining the resistance to corrosion of metals and metal products has been studied with the hope of improving its reproducibility. Many experiments have shown that the "fog" in the test chamber must be maintained at uniform density if different users are to get comparable results.

Powder Metallurgy.—A start has been made on an investigation of powder metallurgy—the art of forming metal objects by compression and sintering of metal powders instead of by melting, casting, and machining to shape. An important characteristic of these powders is their rate of flow through a standard orifice; results of tests at the bureau show that this varies with the kind of metal even among powders of approximately the same fineness. In other words, sieve tests are not a criterion of the rate of flow.

Protection for Boat Mufflers.—The vitreous coating developed at the bureau for aircraft engine exhaust stacks has been applied with success to "dry" and "wet" mufflers of boats and amphibious vehicles. Because of the rapid corrosion of the sheet metal from which these parts are made, they have to be replaced frequently, causing expense and loss of time. Very severe tests in the laboratory and in service show that the new coating has a high resistance to cracking and other damage even when heated to full operating temperature and then plunged into cold water.

Putting Air into Concrete Pavements.—Concrete pavements have been found more resistant to scaling and to destruction by frost action when a little air is incorporated in the concrete at the time the pavement is laid. Air-entraining portland cement is being produced commercially by intergrinding a small quantity of Vinsol resin in the manufacturing process. The properties of some of these cements are such that it is impossible to test them according to existing specification procedures. The bureau has developed new tests that adequately evaluate these products.

New Glass Plant Furnace.—A new furnace was designed and installed in the bureau's optical glass plant. It is so constructed that temperatures in the furnace load can be equalized in much less time than in the ordinary type. Equalization is accomplished by a continuous circulation of air by means of a powerful heat-resistant fan. Using this equipment it has been possible to anneal optical glass pressings in 3 days, instead of 10, thus saving a full week in the making of elements for fire-control instruments and other optical parts carrying the highest priority.

Splitting Mica.—A machine has been constructed for splitting mica. In its improved form, developed after many experiments, the machine consists of a disc carrying six chuck plates for holding the mica blocks, a gauge for starting the split, two stripper blades, and a suction belt for removing the thin films of mica from the machine. No time is lost in changing blocks, since one chuck is loaded while another is being split. Moreover, there is but little bending of the films which are produced at the rate of 30 or more per minute.

Simplified Practices.—Beginning with the sur-

render of Germany, a large number of mandatory limitation orders were revoked by the War Production Board. Many of these included a simplified schedule as part of their requirements. Although the necessity for enforced simplification is now past, the industries concerned are, in many cases, anxious to retain the benefits of voluntary simplified practice in the postwar period. The bureau is co-operating with all manufacturers who have shown an interest in this matter, notably with the structural steel group, the makers of dial pressure gauges, and the asphalt industry.

Prefabricated Houses.—A notable step in advance was the adoption by all interested groups of a voluntary commercial standard for prefabricated houses. This covers the structural strength of component parts, requirements for lighting and ventilation, and recommendations covering foundations, chimney, heating, plumbing, insulation, and electrical wiring. The standard should bring about a better understanding between buyers, sellers, contractors, building inspectors, and mortgagees.

The bureau has participated in a project known as "modular planning," the object of which is to co-ordinate the dimensions of building materials and to correlate building plans and details with these dimensions. This promises to develop into a major factor in lowering construction costs and in improving quality of structures. It is sponsored jointly by the American Institute of Architects and the Producers' Council, Inc., and is being carried on in accordance with the procedure of the American Standards Association.

Commodity Specifications.—The National Directory of Commodity Specifications has been revised and reprinted. This is the only complete, up-to-date compilation of standards and specifications having national recognition. These have been issued by trade associations, technical societies, and organizations that represent industry in a national way, and by governmental agencies that speak for the federal government as a whole. References to the purchase specifications of individual agencies are also included.

Mathematical Tables.—The work of preparing the series of mathematical tables which the bureau has sponsored since 1938 is now being supported by the Navy Department. Forty-eight tables have been made available to the public, and 31 of these can be purchased from the bureau; they are described in detail in a recent *Letter Circular (LC777)*. The tables have been in considerable demand and of great value in connection with many military projects.

Publications.—The results of the year's work, insofar as these are not confidential, have been made available through 111 publications (including papers in the *Journal of Research*) in the bureau's own series and 58 articles in the technical press. An up-to-date list of the bureau's publications, with index (*Circular C24* and supplements) is obtainable from the Superintendent of Documents, Government Printing Office, Washington 25, D.C. The bureau's publications are on file in the leading technical libraries throughout the country, and plans are now being made to enter once again into exchange arrangements with libraries and institutions in Europe.

HUGH G. BOUTELL,
Chief, Information Section, National Bureau of Standards.

STEEL. See IRON AND STEEL.

STETTINIUS, Edward Reilly, Jr., United States diplomat and statesman: b. Chicago, Ill., Oct. 22, 1900. He was appointed United States member of the Security Council of the United Nations Organization (UNO), and chairman of the United States delegation in the General Assembly of the UNO on June 27, 1945, by President Harry S. Truman, who on the same day accepted Mr. Stettinius's resignation as secretary of state, submitted April 13. Mr. Stettinius had held the post of secretary of state since Nov. 27, 1944, when he succeeded Cordell Hull. He had previously served as undersecretary of state, and as such was chief of the American delegation to the United Nations Dumbarton Oaks Conference, convened in August 1944. From 1938 until he resigned in June 1940 to enter government service as a member of the Advisory Committee of the Council of National Defense, he was chairman of the board of directors of the United States Steel Corporation. When he entered the State Department in 1943, he relinquished the offices of lend-lease administrator and special assistant to the president, which he had filled with remarkable ability after September 1941.

STILWELL, Joseph Warren, United States Army officer: b. Palatka, Fla., March 19, 1883. In late June 1945, General Stilwell was named commander of the United States Tenth Army, succeeding the late Lieut. Gen. Simon Bolivar Buckner, an appointment which took him out of his post as commander of Army Ground Forces in the United States and into active combat. On Sept. 7, 1945, he represented the Allied powers at the Japanese signing on Okinawa of surrender documents authorizing the capitulation of 105,000 Japanese army and navy forces in some 60 islands of the Ryukyu group.

Until his recall to Washington in October 1944, General Stilwell was commanding general of United States Army forces in the China-India-Burma theater; deputy to Admiral Lord Louis Mountbatten; and chief of staff to Generalissimo Chiang Kai-shek. One of the most brilliant field commanders in China since "Chinese Gordon," Stilwell has been closely identified with Chinese military affairs throughout his long army career. He speaks Chinese fluently, and from 1932–39, was military attaché at Peiping. Shortly after Pearl Harbor, he was ordered to the Far East, and in March 1942, came into prominence as leader of American troops fighting the short-lived Burma campaign. In his own words, he "took a hell of a beating" in Burma, and retreated on foot through 140 miles of jungle to New Delhi, India, with remnants of his command. Until his transfer to the States in the fall of 1944, he directed his energies toward improving the combat effectiveness of the Chinese Army; forcing the opening of the Burma Road; and keeping China in the war. General Stilwell was graduated from the United States Military Academy in 1904. He took part in several major campaigns in France in the First World War. He was promoted a four-star general in August 1944, and holds the Distinguished Service Cross for his leadership in the Burma campaign.

STONE. Dimension Stone.—According to the United States Bureau of Mines, a total output of 618,620 short tons of dimension stone valued at $14,854,816 was mined in the United States in 1944, a decrease of 26 per cent in quantity and an increase of 11 per cent in value compared with 1943. This total includes all dimension stone sold or used for rough construction, cut stone, slabs, mill blocks, rubble, monumental purposes, paving blocks, curbing, and flagging.

Crushed and Broken Stone.—In 1944 a total domestic output of 154,960,960 short tons of crushed and broken stone valued at $160,787,341 was reported to the United States Bureau of Mines, indicating a decrease of 9 per cent in quantity and 6 per cent in value compared with 1943. Crushed and broken stone used for concrete aggregates and railroad ballast constituted 54 per cent of the industry in 1944, and amounted to 83,080,550 short tons valued at $78,701,175.

The amount of crushed stone used for metallurgical purposes (31,080,330 short tons valued at $25,130,113), ranking next to concrete aggregates in quantity consumed, decreased 2 per cent in quantity and increased 3 per cent in value. Limestone for agricultural purposes (18,941,220 short tons valued at $25,316,219) increased 30 per cent in quantity and 33 per cent in value.

STRAITS SETTLEMENTS. See BRITISH MALAYA.

STRATEGIC AND CRITICAL MINERALS. During the course of the Second World War all of our preconceived ideas as to supplies of strategic and critical minerals have had to be revised throughout. In 1940 the Army and Navy Munitions Board published a list including nine strategic and six critical materials of mineral origin, as follows:

Strategic		Critical	
Antimony	Chromite	Aluminum	Asbestos
Mangenese	Mercury	Graphite	Iodine
Mica	Nickel	Platinum	Vanadium
Tin	Tungsten		
Quartz Crystals			

Strategic minerals were defined as those of which the domestic supplies were so scanty that material difficulty was anticipated in maintaining an adequate supply in the event that any emergency affected the accessibility to foreign sources of supply. Critical minerals were those of which imports formed only a minor, and not a major portion of the normal supply, and hence less effort would be required to maintain the supply in the face of restrictions in imports. It should be kept in mind that this list was compiled several months *after* the beginning of the war, when already there had been serious disarrangements in the normal channels of world trade. It might also be well to point out that this list differed from its predecessor, issued several months *before* the outbreak of war, in only these points: aluminum had been shifted from strategic to critical; and cadmium, cryolite and titanium had been dropped from the critical list.

Long before Pearl Harbor made us active participants in the war, and in fact only shortly after the defense program was inaugurated, it was found that the supplies of many other items were going to be critically short of our needs. The trouble lay not so much in the bulk of the supplies as in the demands that pyramided so rapidly that they far outran anything that had been anticipated. At one time lead and gold were the only metals of which supplies were in excess of demand, and in the shortage list were copper, zinc, steel, and others about which there had been no previous concern, because it was universally thought that the potential supplies were adequate to meet any possible demand. For three years the situation went from bad to worse, with only occasional favorable turns, as when some industry, like mercury for example, pulled itself out of the shortage list by its own bootstraps.

During the latter half of 1943 supply began to catch up with demand, and items on the supply list began to shift from "short" to "adequate" and even to the "surplus" columns. By mid-1944 the peak of demand had been passed for most of the important items, and production rates for some were being reduced. After that time serious problems in shortage were limited to a few special cases, like nickel, tin and quartz crystals.

By the time the war ended, it had been pretty definitely established that a nation as highly industrialized as is the United States could not properly maintain its supply lines for foreign imports of strategic and critical materials in the face of a major war, and it is highly doubtful if this could be accomplished as a neutral, and not as a belligerent. If adequate supplies can not be maintained under such conditions, then the only recourse is to stockpile in advance the amounts of these materials that will be necessary to meet the deficit anticipated in any future emergency.

Stockpiling.—A program of stockpiling was advocated in many quarters as far back as the early 1920's, but in spite of repeated agitation on the subject, it proved to be impossible to prod Congress to the point of taking any favorable action on the subject until June 1939. As the war started in Europe less than three months later, little progress had been made before the markets and trade channels had been so badly disorganized as to slow up progress still more. By mid-year of 1940 so little had been accomplished, and the need for action had so grown that the original plan was abandoned and the Metals Reserve Company was organized to take over and speed up the government purchases of metals and minerals necessary for the defense program.

Realizing that Metals Reserve had been created solely for the purpose of gathering the supplies required in the emergency, and that its functions would expire automatically with the end of the emergency, various efforts have been made in Congress to formulate a basis for postwar stockpiling operations, but thus far without success.

None of the several stockpiling bills that have been proposed to Congress has as yet been enacted into law. The first and only definite progress thus far was made in the passage of the Surplus Property Act in October 1944, which included provisions for placing surpluses of strategic and critical materials on hand at the end of the war into the permanent stockpile established by the act of 1939. In March the Thomas-May bill was introduced into Congress by the chairmen of the Military Affairs Committees of the Senate and the House of Representatives. This bill proposed to establish a permanent stockpiling program, including the freezing of surplus war stocks, the procurement of additional supplies after the war, and the encouragement of the conservation and development of sources of strategic and critical materials within the United States. The bill was never reported out of committee.

In October, Senator Johnson again brought the subject of stockpiling before Congress with another proposal, modifying the previous bill along the lines of objections that had been raised, but leaving many of the major provisions unchanged. This bill provides for the stockpiling of material transferred for that purpose from surplus war stocks, and by later purchases. Except for rotation to prevent deterioration, and for the disposal of material no longer needed for the defense program, materials once added to the stockpile can be disposed of only on order of the President, or for use in time of war or national emergency. In previous attempts to formulate stockpiling legislation the chief targets for criticism have been the question as to whether pur-

chases shall be from domestic or foreign sources of supply, and the methods and conditions under which stockpiled material may be released. Late in November, the Military Affairs Committee reported to the Senate a revised version of the original Thomas bill, in which changes had been made to meet objections raised in committee hearings.

Army and Navy Munitions Board Report.—One of the provisions of the Surplus Property Act was that within three months after passage the Army and Navy Munitions Board should report to Congress its recommendations respecting the maximum and minimum amounts of each strategic or critical material that should be held in the stockpile. In connection with the determination of these quantities the board resurveyed the position of strategic and critical materials, and altered the setup in such a way as to ignore the previous differentiation between strategic and critical except insofar as it is manifest in the quantities to be stocked, and subdivided the entire list into three groups depending entirely on the relative desirability and feasibility of stockpiling. The basis of classification of the minerals and metal commodities is as follows:

Group A comprises those materials for which stockpiling is deemed the only satisfactory method of assuring an adequate supply for a future emergency.

Group B includes other materials, the stockpiling of which is practicable; their acquisition is recommended only to the extent that they may become available as surplus property, since adequacy of supply may be provided by stimulation of existing North American sources of supply, or by the use of substitutes.

Group C includes materials which are not recommended for stockpiling at this time, because of difficulties in storage which are sufficient to outweigh the advantages of stockpiling.

The metal and minerals commodities listed, and their group designations were as follows:

Aluminum	B
(May replace an equivalent amount of bauxite)	
Antimony	A
Asbestos	
Rhodesian chrysotile	A
So. African amosite	A
Canadian chrysotile	C
Barite	B
Bauxite	A
Beryl	A
Bismuth	A
Cadmium	A
Celestite	A
Chalk, English	B
Chromite	
Metallurgical grade	A
Refractory grade	
Rhodesian	A
Others	A
Chemical grade	B
Cobalt	A
Columbite	A
Copper	A
Corundum	A
Cryolite, natural	B
Diamonds, industrial	A
Diamond dies	B
Emery	B
Fluorspar	
Acid grade	B
Metallurgical grade	B
Graphite	
Amorphous lump	A
Flake	A
Crystalline fines	B
Iodine	A
Iron ore	C
Jewel bearings	A
Kyanite, Indian	A
Lead	A
Magnesium	B
Manganese ore	
Battery grade	A
Metallurgical grade	A
Mercury	A
Mica	
Muscovite block and film, good stained or better	A
Same, stained and lower	B
Muscovite splittings	A
Phlogopite splittings	A
Phlogopite block	B
Molybdenum	B
Monazite	A
Nickel	A
Petroleum and products	C
Platinum group metals	
Iridium	A
Platinum	A
Osmium	B
Palladium	B
Rhodium	B
Ruthenium	B
Quartz crystals	A
Radium	C
Rutile	A
Sapphire and ruby	A
Scrap iron and steel	C
Selenium	B
Talc, steatite	
Block or lava	A
Ground	B
Tantalite	A
Tin	A
Tungsten	A
Vanadium	A
Zinc	A
Zirconium ores	
Baddleyite	A
Zircon	A

We find here 53 listings, not counting differentiations in grade, as compared with 15 commodities in the 1940 list. These numbers alone give a rough comparative measure of the changed status of the problem of strategic mineral supplies.

G. A. Roush,
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STREPTOMYCIN. See Medicine—*Antibiotics.*

STRIKES. See Labor Conditions in the United States.

SUDAN, Anglo-Egyptian. See Anglo-Egyptian Sudan.

SUDAN, French. See French West Africa.

SUGAR BEETS. The United States greatly increased its 1945 sugar beet crop over its 1944 crop, and nearly equaled its 1934–43 ten-year average crop. The figures in short tons for the respective years are as follows: 1945, 9,400,000; 1944, 6,753,000; 10-year average, 9,644,000. Colorado, as usual, led in production in 1945 with a crop totaling 2,100,000 short tons. California took second place with 1,615,000 short tons, and Montana was third with 943,000 short tons.

SUGAR BRANCH. The Sugar Branch continued through the 1944–45 crop to administer the Sugar Act of 1937, as amended, which was extended to Dec. 31, 1946, in May 1944. The usual annual determinations were issued for the continental sugar-beet and sugar-cane areas, Hawaii, Puerto Rico, and the Virgin Islands as required under the conditional payment program authorized by the Sugar Act. These determinations cover minimum prices to be paid by processors for sugar beets and sugarcane, minimum wages for field laborers, and soil conservation practices. The compilation and distribution of the basic statistical data on sugar required for wartime controls continued to be centered in the branch in order to prevent duplication among the various governmental agencies interested in various phases of the sugar problem. However, the main activities of the branch during 1945 were in connection with certain war powers, the administration of which had been assigned to the Sugar Branch at the close of 1943, viz., recommending allocations of sugar to claimants for domestic or foreign account, establishing quota limitations through war food orders on shipments by primary distributors of sugar, assisting sugar producers in procuring labor and critical materials and equipment, and servicing the Commodity Credit Corporation in its formulation of sugar subsidy programs to producers and processors.

The year 1944 witnessed virtually complete breakdown of the government's efforts under wartime powers to establish a balance between supplies and requirements of sugar. This breakdown which led to serious consequences in 1945 came about as follows. On Feb. 26, 1944, the War Food Administration had announced that due to increased needs of the armed forces and our allies, and the large use of sugar-cane molasses for industrial alcohol, the total allocation of sugar for all civilian uses for 1944 would be 5,074,906 tons, a reduction of about 6 per cent below the quantity consumed in 1943. The total quantity of sugar allocated for 1944 was 6,529,098 tons, most of the difference of 1,454,000 tons between the two figures representing the allocation to armed forces and the allies. This allocation had been established after considerable difficulty in reducing the claimants' war needs for sugar to correlate with prospective supplies through the interagency allocation machinery described in last year's ar-

ticle (see AMERICANA ANNUAL, 1945 edition, page 673).

This public announcement was followed by a protracted and severe attack by certain elements in the sugar industry and many of the industrial interests dependent upon sugar as a raw material (soft drink manufacturers, confectioners, etc.) on the ground that diversion of a large portion of the Cuban crop into raw material for industrial alcohol was unjustified. On the other hand, those who were concerned with the industrial alcohol program and more especially with the synthetic rubber program dependent upon it, pressed aggressively for an even greater diversion of sugar-bearing materials to the alcohol program than was contemplated by the government. A decision had been reached as far back as Jan. 26, 1944, by the War Food Administrator, after a meeting with the chairman of the War Production Board and the director of War Mobilization. On that date, the War Food Administrator wrote the chairman of the War Production Board that he was making allocations for industrial alcohol at an annual rate of 1,000,000 tons of sugar (800,000 tons in the form of high test molasses, and 200,000 tons as sugar) and 158,000,000 bushels of grain. This information did not become public, however, until after investigation by the Gillette Committee late in March 1944, so that industrial and commercial interests proceeded as if the decision had been made at a relatively low governmental level and was subject to change at top levels of officialdom. Thus the so-called "Bunker Report," on sugar, which was submitted to Price Administrator Chester Bowles as late as May 10, 1944, called for the maintenance of the civilian rationing program at the levels then established of approximately one-half pound per person per week for home use and 80 per cent of 1941 use for industrial consumers. It was recommended in the report that the amount of high test molasses diverted from sugar in Cuba should be the residual figure after sufficient quantities had been made available to meet the then established sugar rationing program and that raw materials for the industrial alcohol program should be obtained from other sources, such as grain. Antiadministration forces made use of dissatisfaction among the industrial users of sugar to attack the administration's program.

Another point of attack by interested parties was the international allocation of sugar. Under the wartime procedure in effect in 1944–45, the Combined Food Board made a recommendation to the respective governments on international allocation of scarce food commodities. Upon acceptance of these recommendations by the respective governments, the recommendation became a firm allocation carried out under authority of wartime powers in the countries involved. In the case of the United States, these powers were exercised mainly under Title III of the Second War Powers Act of 1942. In 1943, British sugar stocks had been permitted under Combined Food Board procedure to increase greatly in anticipation of possible isolation of the United Kingdom through enemy submarine action. Early in 1944 agreement was sought and accomplished to reduce United Kingdom stocks by about 300,000 tons and further reduction was contemplated to prewar levels in 1945 as the submarine menace was overcome. Since these agreements were not made public, there was considerable public criticism by sugar trade interests of what was deemed to be an excessive stock in the United Kingdom which was attributed to lend-lease shipments of sugar from United States and Cuba. However, the Combined Food Board found it impossible to release either figures on stocks in the United Kingdom or the allocation agreement itself because of the wartime dangers involved in disclosure of such data. The United Kingdom had ceased publication of stocks and imports with the outbreak of the war and the United States had discontinued publication of its official import figures. Under these circumstances, public statements and rumors were circulated by some of the interested parties who did not fully appreciate the importance of the issue to the war program, criticizing the secrecy in the government proceedings and alleged excessive generosity to foreign countries. Public confidence in the government sugar allocation and rationing programs was thus undermined, and on May 19, 1944, the Office of Price Administration announced a return to 80 per cent of 1941, as the base level of rationing for industrial users during the second quarter year, after it had previously announced the rate of 70 per cent.

Liberality to industrial users precluded niggardliness in rationing to housewives and public eating places. Under such conditions it proved impossible for the allocations of the War Food Administrator to be carried out by the Office of Price Administration. Distribution of sugar increased to 7,147,709 tons in 1944 as compared with 6,334,713 tons in 1943 and reserves were reduced sharply during the year. Civilian distribution aggregated 6,158,000 tons as compared with the initial 1944 allocation referred to above of 5,074,906 tons and a revised allocation of 5,380,000 tons. The noncivilian distribution was approximately 100,000 tons below the initial allocation. The year-end stocks aggregated only 1,226,000 tons as against over 2,000,000 tons in the three year period 1940–42. An unprecedented drought in Cuba, reduced the 1945 crop tremendously so that a severe sugar shortage developed in 1945 necessitating new forms of distribution control.

Early in 1945 a new control program was worked out by the Sugar Branch to meet the distressing situation which had developed. Interagency problems precluded final action on this program until June 12, 1945, when WFO 131 and 131.1 were made operative by the War Food Administration after approval of the director of Economic Stabilization and full consultation with an industry committee. Under these orders for the period May-September 1945, each refiner and primary distributor of sugar was given an allocation which he could not exceed for deliveries to civilians, military and other principal categories of users respectively. In issuing this order the War Food Administration stated, "The order is being issued to limit sugar distribution to the quantities allocated during the period of shortest supply and maximum demand."

Because of the small carryover of sugar into 1945, the increased needs of liberated areas, and the severe reduction in the Cuban sugar crop of 1945 by drought, agreement upon an international allocation of sugar presented unusual obstacles. The United States, as stated, had greatly exceeded the anticipated civilian distribution in 1944, consuming 89 pounds per capita, as compared with 71.5 pounds for the United Kingdom and 85.2 pounds for Canada. Prewar average consumption for these countries was 96.9 pounds, 104 pounds, and 95.5 pounds respectively. It was necessary to agree upon a principle of division of the United Nations' supply of sugar. Es-

tablishment of a civilian consumption at the same per capita level in the three countries, favored by the United Kingdom and Canada was extremely difficult for the United States because it involved a sharp reduction from the level of consumption of 1944 and serious difficulties for the industrial users of sugar. On the other hand, continuance of the relatively high 1944 level of consumption in the United States was deemed detrimental to other countries. The Sugar Branch was endeavoring to effect a compromise agreement in the Combined Food Board's Sugar Committee (of which Charles M. Nicholson was chairman), when the whole problem of international food allocations was taken up by the Interagency Committee on Foreign Shipments, appointed on March 12, 1945, by the then director of War Mobilization and Reconversion, James F. Byrnes. The committee, after consultations with representatives of the various governments concerned, announced on April 30, 1945, acceptance of the principle of parity of consumption for the United States, United Kingdom and Canada on a per capita basis, after reserving certain quantities for liberated areas, the USSR, neutrals, Middle East, etc.

Meanwhile, public dissatisfaction with reduced sugar rations resulted in a series of Congressional Investigations (see Sugar Report of Special House Committee to Investigate Food Shortages, May 21, 1945, and Hearings of the Select Committee to Investigate Acts of Executive Agencies Beyond the Scope of their Authority, March 21, 1945).

JOSHUA BERNHARDT,
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SUGARCANE. The 1945 sugarcane crop of the United States was estimated by the Department of Agriculture at near record proportions. Only two states grow sugarcane—Louisiana and Florida. Their 1945 crop was estimated at 7,112,000 short tons, as compared with their 1944 crop of 6,148,000 short tons and their average 1934–43 crop of 5,640,000 short tons. Of the 1945 total, Louisiana was credited with 6,098,000 short tons, Florida with 1,014,000 short tons.

SUGIYAMA, Hajime, Japanese Army officer: b. Kokura City, Japan, January 1880; d. by his own hand, Sept. 12, 1945. Field Marshal General Sugiyama, commander of the Japanese First Imperial Army and former war minister, was one of the top Japanese militarists responsible for his country's attack on the United States and her allies. He was a member of the Board of Field Marshals and Admirals. He retired with the Koiso government in April 1945; he had served as Koiso's war minister. As First Imperial Army chief, Sugiyama was the opposite number of Lieut. Gen. Robert L. Eichelberger, commander of the American Eighth Army's occupation troops; he had conferred with General Eichelberger in Yokohama shortly before his death. Sugiyama was a classmate of former Premier Hideki Tojo at Japan's Military Staff College. He first held the post of war minister in 1937; in December 1938, he became commander in chief of Japanese forces in north China, and two years later, Japanese Army chief of staff. In court circles, he was a powerful spokesman for the Kwantung Army group. Sugiyama and his wife shot themselves less than 24 hours after Tojo made his attempt at suicide.

SULPHUR. Production of crude native sulphur in the United States in 1944 totaled 3,218,156 long tons, 27 per cent greater than in 1943 and nearly as large as the record total of 3,460,686 tons attained in 1942, according to the United States Bureau of Mines. In 1944 the total of producer-owned stocks declined 361,901 long tons to 4,100,320 tons. Total stocks at the end of the year were still large and equivalent to over a year's requirements. With the growing need for sulphuric acid in munitions, fertilizer, petroleum, and in many other industries, consumption of sulphur in 1944 reached the record figure of 3,580,057 long tons, compared with 3,191,051 tons in 1943.

During the first six months of 1945, sulphur was consumed at a record rate in the United States and production was nearly as high as the record set in 1942. Production from January to June 1945 was 1,748,442 long tons, an increase of 23 per cent over the 1,426,792 tons for the same period in 1944, and sales were 20 per cent higher. As sales have consistently exceeded production, stocks declined 323,582 tons since the first of the year.

SUMATRA. See NETHERLANDS INDIES.

SUPREME HEADQUARTERS, ALLIED EXPEDITIONARY FORCE (SHAEF). Official designation of over-all agency set up by the Allied governments for the conduct of the war in western Europe. It came into official existence in England on Feb. 13, 1944. Its organization had been implied seven weeks earlier when President Roosevelt announced on Dec. 24, 1943, that Gen. Dwight D. Eisenhower had been named to command the Allied forces that would invade German-held Europe from the north and the west. Although American and British officers filled the main staff positions, the French were strongly represented and also had liaison officers in every section. Belgium, the Netherlands, Luxembourg, Norway, and Denmark had liaison missions attached to SHAEF.

The largest military staff organization of record, SHAEF's personnel numbered about 15,000 officers and men of the Allied armies. The first headquarters location was at Norfolk House in downtown London. After the liberation of the greater part of France, it moved to the historic Palace of Versailles, near Paris; and at the time of Germany's unconditional surrender in May 1945 its forward section occupied a technical school at Rheims. Following the surrender, headquarters moved to Frankfort-on-the-Main where it occupied the I. G. Farbenindustrie offices, nicknamed the Little Pentagon Building.

At the time of SHAEF's organization it had been agreed that it would be dissolved within 90 days of the victory over Germany. Accordingly, it ceased to exist at 12:01 A.M. on July 14, 1945, 17 months after its organization. The dissolution was hastened in order to enable the international military authorities to provide equal representation for Russia in the joint occupation of Germany. Its responsibilities were absorbed by the four-power Allied Control Council in Berlin, consisting of representatives of Britain, France, Russia, and the United States.

SURGERY, Progress in. A great war is now ended. The tremendous progress in the art and science of surgery will continue despite the lessening pressure of war, for this is the great merit of medical science today. Many of the outstanding contributions to the progress of surgery during the past year will undoubtedly be attributed to the pressure of war needs; but most certainly

they are also the visible evidence of the profound interest of the American physician, of the excellent teaching of young physicians, and of the alertness of the medical research scientist. Had these been lacking, medical care and medical progress would have fallen far short of the demands of war; that they did not, is a splendid commendation of all the branches of medical science.

Despite the fact that we knew, during the past year, that there would soon be a great change in the theaters of war and that such a departure would entail great changes in demand in the field of medicine, yet the highlights of surgical progress are equally shared by ideas, methods, and treatments designed primarily for civilian surgical practice and for care of battle casualties.

Blood Vessel Surgery.—One of the most unique and outstanding developments, making its appearance as a direct result of the war stimulus, is the nonsuture method of blood vessel anastomosis or reunion. This work was begun by Blakemore and Lord in 1942 and was ready for use by late 1943. Whenever an extremity is struck by an explosive shell, land mine, grenade or bomb, a variable amount of damage is done to the blood supply to that extremity. If the main blood vessel or vessels are severed, then the part must depend upon collateral vessels for its blood supply and its ultimate survival. The high explosive missiles developed during the war have a highly destructive power which produces extensive damage, often severing not only the main artery but producing widespread destruction of adjacent tissues and as a result the adjacent collateral vessels. The authors began by using the ancient method of joining vessels by means of a hollow tube or canula. They added to this the principle of lining that tube by a vein graft. The metal used was a nonirritating alloy, vitalium. The single, rigid tube or canula of vitalium has more recently been replaced by two smaller but similar tubes placed at each end of the vein graft-artery union.

The technic introduced by Blakemore and Lord consists of everting (cuffing) the ends of the vein graft over the ends of the canula or tubes and securing them by a ligature or tie of fine silk. The artery is then drawn over the cuffed vein end and again held in place by a ligature. The ligatures are kept from slipping off the tube ends by small tying ridges a few millimeters from the ends. This procedure offers the all-important intimate contact of vein lining (vein intima) to artery lining (artery intima). This technic, when compared in experimental animals with the Carrel technic (developed during the First World War) of direct, end-to-end suture of severed vessels, gave a far higher percentage of successful vessel repair.

The authors have also used experimentally, vein grafts removed from other animals (heteroplastic grafts) and stored for varying periods, after quick freezing, in an alcohol dry-ice mixture kept at or below minus 40°C. They found that these grafts, in experimental animals, functioned adequately when used as grafts to bridge arterial defects. The use of heteroplastic tissues of all kinds has offered great attraction to surgeons for decades. In a period of war where battle casualties cannot be predicted either in time or quantity, this subject has even greater attraction. The preparation beforehand of large quantities of tissues needed would simplify and speed the repair of battle injuries. For the most part, the use of heteroplastic grafts has been disappointing and only a prolonged trial will demonstrate whether the use of such grafts in the repair of arterial injuries and defects will be satisfactory. The application of experimental results, those demonstrated satisfactorily on animals, to humans frequently leads to failure so that more time and wider experience in this field must be allowed before widespread use is to be encouraged.

With the advent of an efficient method of blood vessel anastomosis, relatively easy of technical accomplishment, a wide variety of uses have already suggested themselves. The abnormal enlargement of arteries (aneurysms), following various diseases and the possibility of rupture of these vessels as a consequence, and the abnormal communication between artery and vein as a result of injury or disease, have both been shown to be amenable and suitable to this form of surgical treatment.

Heart Malformations.—The interest in blood vessel surgery stimulated by war injuries has resulted in a renewed interest in the treatment of congenital diseases of the heart, and of the large vessels arising there. Heretofore there has been no satisfactory treatment for the malformations resulting from the time of birth in the "blue baby." The results reported recently by Dr. Alfred Blalock and Dr. Albert Taussig have been sufficiently encouraging in three patients so that serious consideration should be given them when treating the infant born with a malformed heart.

The blue color of the skin and mucous membranes in infants born with improperly developed hearts is due to the circulation of insufficiently oxygenated blood. It is well recognized that one of the causes for improper oxygen saturation of the blood in these infants is the diminution of blood flow through the lungs. Expressed in the simplest terms, the circulation of the blood through the lungs after birth is essential for life; anyone deprived of such circulation dies. Undoubtedly the diminution of flow of blood to the lungs, which occurs in certain types of congenital heart disease and which results in a "blue baby," is only a variant in degree. The recent successful surgical attack by Blalock and Taussig upon these handicapped babies opens a large new field of surgical endeavor in a small group of diseases heretofore considered amenable to medical treatment only.

The operations performed most recently have been carried out upon those infants in whom the great vessel (pulmonary artery) at the base of the heart which leads to the lungs has an insufficiently large caliber at one point (the pulmonary valve) to admit passage of adequate amounts of blood into the lungs. The operation consists in anastomosis or union of the subclavian or innomonate artery to one of the pulmonary arteries. Thus, the blood which would normally pass into the systemic circulation is diverted, beyond the area of stenosis or narrowing, into the pulmonary circulation. The great quantity of blood thus shunted is capable of taking up adequate amounts of oxygen and, after return to the heart from the lungs, of being returned to the systemic circulation fully oxygenated. Thus these infants have a return of normal color and full vigor.

The technical procedure was carried out by means of direct suture and without the use of the Blakemore tubes described above. It is important to emphasize that the operation described

by these authors is not of value to all patients with persistent cyanosis ("blue babies"). It is of value only in malformations in which the primary difficulty is lack of circulation to the lungs.

Otosclerosis.—The treatment of patients suffering from deafness, due to a specific disease, is in keeping with the progress of surgery in the cure of patients with incapacitating disease, but offers little in the domain of treatment of war injuries. Otosclerosis is the name given to a form of deafness produced by sharply circumscribed bony overgrowths occurring within the inner ear and parts connecting it with the middle ear. When these bony tumors have proliferated to a point where they have produced ankylosis (fixation) of the tiny ossicles in the middle ear deafness is produced.

Clinical otosclerosis can be cured by ignoring the tumor in the inner and middle ear, and creating instead a new opening into the inner ear. Such a newly created opening or window into the labyrinth in the inner ear replaces the normal but functionally impeded window and establishes a new air conduction mechanism which permits the perilymph and endolymph of the labyrinth to be freely mobilized again by airborne sound. Such an operation is known as fenestration and was first described by Lempert. The clinical diagnosis of otosclerosis is easily arrived at when all or most of the following classic signs and symptoms are observed in a patient complaining of deafness:

(1) A family history of hereditary deafness is obtainable.

(2) Deafness for airborne sound is slowly or rapidly progressive, beginning first with loss of perception of low-pitched sounds and ultimately involving high frequencies or high pitched sounds. Such deafness is usually bilateral, though it may appear in one ear first and follow in the other ear at some time later.

(3) Hearing for bone-conducted sound is prolonged over and above the hearing by air conduction at all the frequencies at which air conduction is impaired.

(4)The patients frequently believe that they hear conversation better in noisy places.

(5) The patients frequently complain of ringing in the ears either unilaterally or bilaterally and this may be intermittent or continuous, mild or severe.

(6) The eustachian tube, the tube connecting the middle ear with the pharnyx, is patent, and tests of hearing following inflation of this tube show no improvement.

Since deafness resulting from otosclerosis is progressive and usually results in total, irreparable loss of hearing, and since there is no known satisfactory medical treatment which could either improve the hearing or arrest the process, and since experience and time have shown that in a large percentage of patients this form of deafness can be cured only by surgical treatment, the operation of fenestration is advisable providing there are no demonstrable medical or surgical contraindications. No patient with clinical otosclerosis should, as a rule, be advised to subject himself to the operation before his loss of hearing by air conduction has reached such a low level that he is deaf for all *practical* purposes.

When both ears are suitable for the fenestration operation, the ear most likely to yield the type of hearing improvement most beneficial to the patient should be the one chosen for the operation. The operation described by Lempert for the creation of a new window into the inner ear consists first of an incision just at the margin of the external auditory canal and exposure through this of the mastoid bone lying beneath. The mastroid antrum is then opened and extended until the three semicircular canals are widely exposed. A portion of the ossicle of the middle ear is then removed and the bony covering of the vestibule of the semicircular canals is removed with a dental burr. The perilymph space is then exposed. Lempert then advises filling the opening in the vestibule with a loosely fitting stopper, or "stopple," to prevent regrowth and closure of the newly formed opening by bone. The stopple is then covered with the mobilized skin of the adjacent external ear canal.

Lempert reports that 815 cases have been done in which a preoperative diagnosis of otosclerosis was made and in which good hearing for bone-conducted sound was present preoperatively. Of these 815 cases, 571 have been completely rehabilitated for social and economic contacts as a result of restored hearing. Partial rehabilitation was accomplished in 92 cases. The hearing was unimproved in 118 cases and was further impaired in 34 patients. In 185 patients with clinical otosclerosis, poor hearing for bone-conducted sound was already present at the time of operation and of these, complete rehabilitation was obtained in 42, partial rehabilitation in 39 patients. The remainder were either unimproved or made worse. Twenty-four of 75 patients operated upon more than six years ago have retained their practical, serviceable hearing for more than six years, one patient for seven years. Thirteen patients retained improved but not practical hearing for more than six years. The operation is still in the process of development and continued improvement. The results up to the present time are indeed encouraging in a disease that frequently progresses continuously to complete, irretrievable deafness.

Tuberculosis.—The treatment of patients with pulmonary tuberculosis has progressed over a long, tortuous road to the present day level of excellence. Our present day medical therapy of pleasant surroundings, good food, expert nursing care and emphasis on high morale is a far cry from the old days of segregation in the "pest house," ostracism, callous neglect. With each new adjunct in therapy there is widespread and enthusiastic trial with later careful evaluation and allocation of new treatments into their proper niche in modern therapy. So in tuberculosis pneumothorax was accepted widely and used indiscriminately until proper evaluation and selection of patients was defined and then rigidly adhered to, and more recently, the use of phrenic nerve paralysis, pneumonolysis (severing of adhesions between lung and chest cage) and thoracoplasty have each found a place in the high degree of successful treatment of pulmonary tuberculosis.

Within the past two or three years physicians and surgeons have shown an increasing interest in the complete eradication of portions or all of a lung involved in the tuberculous process. Such eradication, if technically feasible would seem logical if the final results showed that such eradication were complete and that the means of obtaining it carried little or no mortality.

At the 25th annual meeting of the American Association for Thoracic (chest) Surgery, reports by Dolley, Janes, Bailey, Hart, Meier and Klopstock, Chamberlain, and Overholt and Wilson, brought up to date the experiences with removal of portions or all of one lung for tuberculosis.

Most of the experienced chest surgeons have, prior to the past two or three years, occasionally found removal of a lung or a portion of a lung necessary when persistent tuberculosis infection remains after completion of less radical definitive procedures. Despite this, primary lobectomy (removal of a lobe of the lung) or pneumonectomy (removal of one lung) has not been widely favored until recently.

The operations of lobectomy and pneumonectomy are running true to form. We are deep in the enthusiastic phase. It ensures beyond peradventure the permanence of these two surgical procedures in the treatment of pulmonary tuberculosis. It does not by any means, however, signify that most physicians are competent to choose the correct cases for these procedures or to manage with a minimum of risk the preoperative, operative and postoperative courses. The reports of the above physicians will go a long way in excluding those patients for whom these procedures must not be used, those who would do fully as well or better following another less radical operation, and those for whom the single or multiple removal of lung lobes is shown to be clearly the procedure of choice.

The combined figures reported by the above physicians reveal that 118 patients have had the total removal of a lung or portions of that lung for pulmonary tuberculosis. Of these patients, 28 have failed to improve, have become worse, or have died of the operation or its complications. This is by far a much too high mortality to give widespread and unequivocal acceptance to these operations on all patients; despite the fact that tuberculosis is in many instances a fatal disease and many of the patients upon whom it was carried out were desperate surgical risks. The honest publication of these results and their careful evaluation has, however, given the chest surgeon confidence in the procedure for this disease and some indication of its place in his repertory of methods of therapy of pulmonary tuberculosis.

Arteriosclerosis.—People suffering from the consequences of organic disease of the peripheral arteries such as arteriosclerosis (hardening of the arteries) are generally believed to be beyond the reach of surgical aid except in those instances where amputation of a part or all of an extremity is necessary for gangrene, or serious infection. The belief of Trimble, Cheney, and Moses is a different one: these persons can be helped, because there is in almost every instance a functional spastic factor in addition to the organic one, and this spastic factor can be removed by surgery. The reward that these physicians have obtained in 59 patients operated upon has been twofold: (1) preservation of many limbs and lives through the prevention of the onset or the spread of gangrene; and (2) the relief of distressing pain.

It is a well-known fact that there are certain functional disorders of the nervous mechanism of blood vessels causing either a vasoconstriction (constriction of the vessels) or a vasodilation (dilation of the vessels), and that the disorders causing vasoconstriction, and therefore diminution of blood to an extremity, can be dramatically relieved by surgical removal of the sympathetic nerve fibers involved.

What is not generally or widely appreciated by many physicians is that many of the organic diseases of the blood vessels have an associated vasomotor (control mechanism of size of blood vessels) spasm which may be the cumulative factor responsible for the ensuing gangrene. The death of the part affected (gangrene) is due many times, not to the original arterial disease, but to the superimposed constriction of accompanying smaller vessels. Recognition of this fact and subsequent operative removal of the nervous mechanism causing the vasoconstriction will in proper cases result in the curing of pain and the actual salvation of the part from death from gangrene.

If the routine tests on a diseased extremity show definite circulatory improvement, then a sympathectomy (removal of the sympathetic-vasoconstrictor nerves) must be considered. The selection of patients for this operation requires the greatest care in balancing the possible benefits against the risk incurred, since arteriosclerosis is a disease primarily of older individuals. Manifestly it would be wrong to employ this operation indiscriminately on patients suffering from diminished arterial blood supply to the extremities who show no evidence of improvement after the preliminary tests for vasomotor spasm. Nevertheless, many patients in this group do benefit from removal of the sympathetic nerves, and, if their physical condition permits, should be subjected to the operation. Likewise, manifestly it is right to employ the operation in all patients suffering from the serious consequences of diminished arterial supply whose tests show that vasomotor spasm as well as organic arterial disease is a causative factor, provided the general physical condition of the patient will permit the operation.

The operation of sympathectomy attacks the disease in several ways. Extremities with poor arterial circulation are peculiarly susceptible to cold; the colder they become the more constriction take places in the vessels, and, since the nervous pathways for vasoconstriction and sweating are the same, the more vessels become constricted the more sweating takes place with further lowering of temperature. This vicious cycle is broken by operation in two places; the vasoconstrictor fibers are paralyzed and sweating is abolished. In several patients reported by the above authors, an increase in temperature of the leg and an improvement in its color were found on the side opposite to, as well as the side of, operation. This phenomenon is of considerable importance since arteriosclerosis is a generalized disease, although it may well affect one extremity more seriously or extensively than the other.

Gangrene and pain, alone or in combination, are the challenging factors in this problem. The rapid healing of a previously indolent ulcerated or gangrenous area will often follow sympathectomy. The relief of various types of pain following sympathectomy have been gratifying. In such a group of patients are found (1) the pain in the calf muscles of the leg following very short exercise (called intermittent claudication); (2) the diffuse rest pain in a foot with or without the presence of actual ulceration and (3) the rest pain localized in a small ulcer or in a gangrenous toe.

No physician or patient should minimize the great importance of measures other than operative which must be maintained in all individuals with arteriosclerosis after the operation of sympathetic nerve removal. The organic arterial disease is still present, and an increased susceptibility to injury and infection persists. Of special importance is the meticulous daily care which must be given to the care of the feet, the avoidance of injury when cutting the nails and the avoidance of

vasoconstrictor influences such as cold, mental anxiety, and tobacco.

Burns.—Perhaps one of the greatest contributions that can be attributed to the influence of the Second World War on surgical progress has been the clarification of our views on the treatment of the severely burned patient. The treatment of these individuals has been focused upon three different aspects of the burned individual: (1) the treatment of the burned area; (2) the treatment of the abnormal physiologic changes which occur in that individual's body chemistry —the treatment of burn shock and so-called burn toxemia; and (3) the treatment of the late results of severe burns—the restoration of function and appearance by reconstructive and plastic operations.

As a result of wide experience in the war theaters, the immediate treatment of the locally burned area and the late reconstructive and plastic operations have become quite uniform and universally accepted. The treatment of the abnormal changes which occur in body fluids as a result of a severe burn have also received wide attention without universally conclusive evidence of the effectiveness of salt solutions, cell-free blood components (blood plasma and serum), and whole blood in permitting immediate recovery from the burn injury.

The purpose of the quantitatively controlled experiments carried out by Moyer, Coller, Iob, Vaughan, Marty were directed toward this phase of treatment of the burned patient. Their experiments were done on carefully anaesthetized, uniformly injured (burned) experimental animals.

The first group of experiments was carried out to determine and correlate the body loads of various salt solutions and plasma with the length of life and changes in the measurable body fluids that follow injury when the various solutions were given before the injury. After determining the length of life of several control animals, a second group of animals was given physiologically equivalent amounts of (1) isotonic sodium chloride solutions (normal saline); (2) Ringer's-lactate solution; (3) saline-bicarbonate solution; and (4) plasma. The mean survival time of these various groups of animals was approximately 5 hours for the control animals, 7 hours for the animals receiving normal saline in the preburn period, 9½ hours for the Ringer's-lactate animals, 9 hours for the plasma treated animals, and 14 hours for the normal saline-sodium bicarbonate treated animals. From the above experimental findings it is quite obvious that the animals receiving the saline-sodium bicarbonate solution lived significantly longer than did all of the other groups.

Following the "load" series of experiments, a comparative study of therapy was undertaken. Again a series of control animals was run and then the survival times studied, after giving each group of animals the normal saline-sodium bicarbonate solution, combinations of serum and saline-bicarbonate solutions, blood intravenously and water freely by mouth, and whole blood intravenously, saline-bicarbonate solution freely by mouth. In this second experiment all animals were given their reparative solutions in the post-burn period rather than in the pre-burn period. Thus they simulated in so far as possible the conditions under which patients are seen after being burned.

The results in this second series of animals revealed that the survival time in the control group was again approximately 5 hours; in the saline-bicarbonate group, 24 to 25 hours; in the animals given serum and saline-bicarbonate intravenously approximately 33 hours; in the group given whole blood intravenously and water freely by mouth 50 hours; while in that group of animals given whole blood intravenously and the saline-bicarbonate solution by mouth, the mean survival time extended up to the arbitrarily selected time for sacrifice.

Thus from the experiments performed by these workers, it was concluded that the sodium chloride—sodium bicarbonate solution was a definitely superior repair solution when compared with sodium chloride (normal saline) solution alone or plasma, and that prolongation of life up to the arbitrarily selected 100 hours' period could be brought about only by the use of whole blood transfusions and the saline-bicarbonate solution given by mouth. By the use of these two solutions in combination with each other, these animals were carried through the "shock" period *without inducing physiologic changes that may in themselves result in death* in less than 100 hours.

The general conclusions outlined by the authors as a result of their experiments were that in the case of severe injury (burn) such as obtained in their experimental animals, whole blood was the only substance tested that was capable of maintaining a blood volume compatible with life without inducing lethal complications, and that the negative load of fluid in the tissue cells and intercellular spaces could be reduced safely and more completely by the oral administration of a salt solution which approximates the normal interstitial fluid (saline-bicarbonate solution). It is obvious that these experimental observations are completely valid only for the animals used in the above experiments. But, since the application of these principles to humans has shown great promise of improvement in the treatment of individuals following severe burns, this recent contribution to our knowledge in the care of burned patients has been of inestimable value.

We are now in the process of reconcentrating our effort on the purely civilian surgical problems. A great debt is owing those physicians who contributed their whole efforts to the betterment of care and treatment of injuries received in battle. The evidence of continued progress and interest in the care and welfare of the noncombatant civilian during the past year is fitting commentary on the high ideals and aspirations of medical practice of the present day.

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SURINAM (NETHERLANDS GUIANA). A Netherlands West Indies colony on the north coast of South America, west of French Guiana and east of British Guiana. The area is 54,291 square miles, and the population (Dec. 31, 1943), including Bush Negroes and Indians in the interior, 189,484. Paramribo (pop. 60,723) is the capital and principal port. The colony is administered by a governor (Dr. J. C. Brons assumed office Jan. 3, 1944) who is president of a council of four, all nominated by the queen of the Netherlands. The States of Surinam, a legislative body, has 15 members, 10 of them elected and 5 appointed by the governor (all for a term of four years). Government revenue for 1945 was put at 8,171,000 guilders, and expenditure at 8,167,000 guilders. Public and private elementary

schools in 1943 totaled 115, with 18,249 pupils.

Production.—Some 150 square miles are under cultivation, about one third in large plantations and the rest in small peasant holdings. Sugar, coffee, and rice are of greatest economic importance; rice, cultivated primarily for domestic consumption, constitutes the largest crop in terms of quantity and the second largest in value. Other crops include cacao, bananas, and corn (maize). Molasses and rum are manufactured. Balata, the latex of the bully tree, and hardwoods are obtained from the forests. Most valuable of the colony's exports is bauxite, mined at Moengo, on the Cottica River about 104 miles from its mouth; gold is also mined. During the Second World War the United States maintained a garrison in Surinam for the protection of the bauxite mines and the refining plant at Paranam, on the Surinam River about 20 miles above Paramaribo.

External Trade.—Exports in 1943 had a total value of 14,173,267 guilders. The principal products exported were bauxite (1,662,766 metric tons), sugar (2,668,702 kilos), and coffee (189,352 kilos). In 1943 goods to the value of 22,268,102 guilders were imported, these including manufactured goods, foodstuffs, and petroleum products. The United States is now a market for nearly the entire export trade of Surinam, and has practically supplanted all other countries as a supplier of the colony's imports.

Communications.—In the more densely settled areas there are fairly good roads (with an approximate length of 230 miles), and a railroad about 108 miles long extends southeastward from Paramaribo to Dam, on the Surinam River. However, transportation and communication within the colony are chiefly by water navigation. A private company operates small steamers and motor boats on the rivers. Paramaribo, 13 miles above the mouth of the Surinam River, is reached by regular steamer services from New York and Gulf of Mexico ports. The capital is also served by Pan American Airways and by the Royal Netherlands Airways (K.L.M.), the latter connecting Paramaribo with Curaçao via Trinidad.

SVALBARD (SPITSBERGEN). An archipelago belonging to Norway and situated between longitude 10° and 35° E. and latitude 74° and 81° N., and including Bear Island, 240 miles north of Norway. The distance from Norway to South Cape, southernmost point of West Spitsbergen (largest island of the group), is 360 miles. The area of the archipelago is 24,294 square miles. The chief islands are: Mainland or West Spitsbergen, Northeast Land, Prince Charles Foreland, Edge Island, Barents Land, King Karl's Land, Hope Island, and Bear Island. The total population in the winter of 1938–39 was about 2,210; the islands were later virtually deserted. There are extensive coal deposits on the islands. Coal shipments in the summer of 1938 amounted to 606,000 tons. It was from Kings Bay, Spitsbergen, that both Rear Admiral Richard E. Byrd and the late Roald Amundsen made their flights over the North Pole in May 1926. Until 1941 there were six mining camps maintained all the year round, of which the largest was Longyearbyen on Advent Bay, with 550 inhabitants.

SWAZILAND. A British protectorate in South Africa, surrounded by the Transvaal Province of the Union of South Africa except on the east, where it is bordered by Mozambique (Portuguese East Africa). Only one third of the area of 6,705 square miles is a native reserve, the remainder being owned by white settlers; although smaller than Basutoland and the Bechuanaland Protectorate (qq.v.), it has a larger white population than those two combined. The total population in 1942 was estimated to number 160,000. The Swazis (153,270 at the 1936 census) are akin to the Zulus; among the most backward of African races, still wearing feathers and carrying assagais and knobkerries, for the most part they are superstitious pagans, the delight of anthropologists and students of primitive customs and beliefs. Administratively, Swaziland is one of the high commission territories in South Africa (see BASUTOLAND); the resident commissioner (E. K. Featherstone appointed Sept. 30, 1942) has his headquarters at Mbabane, situated amidst mountainous scenery in the northwest of the protectorate. The country is hot and wet in summer, malaria being prevalent. In the native reserve, a paramount chief shares authority with a queen mother (not the chief's real mother). Standards of literacy and education are low; about half of the 200 mission, tribal, and united schools in 1943 were assisted by government grants, the remainder being operated solely at missionary expense; there were also 9 schools for white children, and three for those of mixed blood. The Swazis are mainly on a cattle economy; in 1942 they owned 383,245 head of the 462,850 cattle in the country, and 346,898 sheep and goats; during the winter months some 300,000 sheep also pass into the country from the Transvaal and the Orange Free State to feed on the rich grasses. Corn (maize) and other cereals are cultivated, as well as peanuts, oranges, and subtropical fruits, but production does not suffice for local consumption. Cotton and tobacco do well. The country is highly mineralized. Tin and gold deposits have long been mined on the western border, and anthracite deposits exist, but the main economic asset of the country is asbestos, the mining of which (at Havelock) was commenced only during the Second World War. Swaziland has never balanced its budget without aid from the British taxpayer. In 1942–43 the revenue amounted to £210,229, and the expenditure was £179,893. Native education is being extended, and agriculture, animal industry, and forestry improved, through grants of £549,937 made (1940–45) by the British treasury. For customs purposes, Swaziland is treated as part of the Union of South Africa, which credits the country with a percentage of the annual customs receipts. Motorbuses of the South African Railways administration link the principal centers of Swaziland with the Union's railway system.

SWEDEN. A kingdom of northwestern Europe occupying, with Norway, the peninsula of Scandinavia; area 173,403 square miles; population (1943) 6,522,827. The population is entirely Swedish with the exception of about 33,929 Finns, 6,481 Lapps, and 16,475 other foreigners. In addition, when the war in Europe ended, Sweden was harboring some 175,000 foreign refugees and evacuees. Of the 1940 population (6,370,538), about 3,990,520 lived in rural districts and 2,380,912 in towns and cities. In 1943 there were 6,249 immigrants to Sweden and 687 emigrants, of whom 66 went to the United States. The chief cities of the kingdom with their populations are: Stockholm, the capital, 634,179; Göteborg, 290,494; Malmö, 163,116; Norrköping, 73,564; Hälsingborg, 64,040;

Örebro, 59,989; Borås, 50,541; Linköping, 45,664. Births in 1941 numbered 99,727; deaths, 71,910, leaving a surplus of births over deaths of 27,817.

Government.—The king, who must be a member of the Lutheran Church, is vested with the executive power, which he exercises through the Council of State, and also with a measure of legislative power in conjunction with the bicameral Riksdag, or Parliament. The First Chamber of the latter has 150 members, elected for terms of eight years by the members of the Landstings, or provincial representations, and certain qualified electors of six cities. The Second Chamber has 230 members, elected for four years by universal suffrage. The Council of State, or Ministry, or Cabinet is headed by the prime minister. The reigning sovereign is King Gustav V, who succeeded on the death of his father, King Oscar II, on Dec. 8, 1907.

Religion.—The Lutheran Protestant is the state church, which has 6,124,366 adherents. This church has 13 bishoprics with Upsala as the metropolitan see. Other creeds are the Roman Catholic with 4,818 adherents and Protestant dissenters which include 55,449 Baptists and 11,450 Methodists; Jews number 6,653, although this last figure has grown considerably recently owing to an influx of refugees.

Education.—Primary education is free and compulsory between the ages of seven and 14 years. In the elementary schools of the kingdom there are 28,756 teachers and 538,304 pupils. There are 142 college preparatory schools, with 55,104 students; 59 people's high schools with 6,301 pupils; 2 high and 11 elementary technical schools with about 4,908 students; 5 navigation schools, and a number of special schools for art, agriculture, veterinary science, deaf mutes, the blind, etc. For higher education there are the universities of Upsala with 2,561 students, Lund with 2,468, Stockholm with 2,010, Göteborg with 516, and the Carolinian Medical Institute in Stockholm (which awards the Nobel Prize in Medicine and Physiology) with 960 students.

Defense.—The defense system is based on universal military service coupled with voluntary enlistment, and was extended through Riksdag decisions in 1936, 1937, and 1942.

Army.—The army in peacetime consists of 19 infantry regiments, 3 cavalry regiments, 4 armored regiments, 7 artillery regiments, and 2 artillery corps, 3 antiaircraft regiments and 4 antiaircraft corps, and several regiments for maintenance and transportation. Sweden is divided into 7 military territories.

Navy.—The navy consists of 2 cruisers (2 building), 7 coast defense ships, 1 combined airplane carrier and cruiser, 1 older cruiser, two mine cruisers, about a dozen new destroyers and some old ones, several submarines (actual number not made public), an undisclosed number of motor torpedo boats, 42 minesweepers, 2 depot ships, and patrol vessels.

Coast Artillery.—In peacetime there are 3 coast artillery regiments, and one coast artillery corps on Gotland.

Air Force.—In peacetime there are 6 light bomber groups, 7 fighter groups, 1 torpedo group, and 3 reconnaissance groups (1 strategic, 1 for the army, and 1 for the navy). These groups form 4 wings. Every group consists of 3 squadrons. Sweden is divided into 5 flying base territories, each of which maintains the airfields and supplies within its area.

Finance.—Expenditures for 1944–45 were estimated at 3,774,000,000 kronor and revenues at 3,240,000,000 kronor, as compared with 3,949,684,000 kronor and 3,097,340,000 kronor respectively for the previous year.

Agriculture.—There are in Sweden 3,758,458 hectares of cultivated fields; 1,019,000 hectares of hayfields and pasture land; 11,521,518 hectares of forest land (hectare=2.47 acres). Livestock includes 2,789,780 cattle; 988,642 swine; 594,444 horses; and 619,820 sheep and lambs. The total value of field crops was 1,738,233 kronor, or about $434,559 in 1940. The yield of the leading crops in 1943 is shown in the following table:

Crop	Production (tons)	Crop	Production (tons)
Wheat	524,215	Vegetables	52,513
Rye	404,753	Potatoes	2,171,118
Barley	232,621	Sugar beets	1,868,256
Oats	850,306	Fodder roots	2,267,356
Mixed corn	494,682	Hay	4,272,643

Lumber.—Before the Second World War lumber exports from Sweden amounted to an annual total of between 700,000 and 800,000 standards (1 standard=1,980 board feet). During the first two years of the war the annual totals were reduced to between 400,000 and 500,000 standards, and during 1943 to 195,000 standards. In 1944 the total was still lower. The average annual domestic consumption of lumber has been for some years approximately 600,000 standards.

Mining.—"Iron and steel production was well maintained during the year (1943)," according to the June 17, 1944 issue of *Foreign Commerce Weekly* (published by the U.S. Department of Commerce), "output amounting to about 800,000 metric tons, only slightly below 1942 figures." Other mining activities in 1939 included: 14,195 tons of silver and lead ore, 16,434 tons of copper ore, 63,826 tons of zinc ore, 6,085 tons of manganese ore, 242,280 tons of auriferous arsenic ore, and 191,737 tons of sulphuric pyrites. The 1939 production of coal was 443,695 tons. The production of aluminum by the middle of 1944 had reached a capacity of more than 5,000 tons annually, making the country independent of imports.

Manufacturing.—Under the heading *Mining* the output of the several branches of the metallurgical industries is given. Other industries include porcelain and glass, matches, electric meters and appliances, ice boxes, telephones, radio receiving sets, seacraft, automobiles, airplanes, locomotives and other rolling stock, cream separators, ball bearings, electric light bulbs, rubber (shoes and tires), furs, textiles, clothing, building materials, furniture, floor coverings, industrial art objects, surgical instruments, candy, foodstuffs, soft and alcoholic beverages, and sports accesories. Of the greatest importance, however, in the internal economy of the country are the timber and woodworking industries. There are 1,301 sawmills which employ 27,336 operatives and turn out 270,524,000 kronor worth of products. There are 1,943 factories for joinery and furniture with 31,721 workers and an annual output valued at 263,926,000 kronor. The 71 wood-pulp plants employ 15,076 workers and turn out goods to the value of 247,121,000 kronor. The 72 paper and pasteboard plants employ 16,298 workers and turn out goods to the value of 213,838,000 kronor annually. There are 18,753 industrial establishments employing 638,028 men and women, boys and girls. One krona (pl. kronor) equals $0.238.

Foreign Trade.—In 1944 the total turnover of Sweden's foreign trade amounted to 11,500,000 metric tons, the lowest figure recorded since the present system of compiling statistics was inaugurated in 1912. Exports were most severely hit, amounting to only 6,300,000 tons compared with 22,000,000 tons in 1939. The corresponding figures for imports were 5,300,000 and 15,000,000 tons.

Transportation and Communication.—There are 16,716 kilometers of railways, of which 10,842 kilometers are government-owned. All major government trunk lines have been electrified. Sweden has a total of about 5,000 kilometers of electrified railway lines, including what is said to be the longest continuous electrified line in the world. Government-owned electrified lines account for 85 per cent of all traffic. Post offices number 4,506, telegraph lines have a total length of 12,369 kilometers, and telephone lines have a circuit length of 2,153,064 kilometers with 1,035,939 instruments, or 157.2 per 1,000 inhabitants. (One kilometer equals .621 mile. One mile equals 1.61 kilometers.) There are 89,185 kilometers of roads. Commercial aviation is partly subsidized by the government. Before the Second World War there was a regular air service, maintained by Swedish and foreign lines, between Stockholm, Helsinki, and Moscow, and the continent. In 1942 the SILA (Svensk interkontinental lufttrafik A.B.) was formed. It is a private enterprise with the operation of intercontinental air lines as its sole purpose. On June 27, 1945, a plane belonging to the SILA company made its first flight to the United States via Iceland. The Aktiebolaget Aerotransport (founded in 1924) is reopening its European continental traffic. It has also opened air traffic on 5 lines within the country. An extension of these lines on a large scale will be effected as soon as modern equipment and planes are available to Sweden. The Swedish merchant marine consisted on July 1, 1944, of 2,107 ships, with a total gross tonnage of 1,475,348.

Principal Events of 1945.—The first months of 1945 saw Sweden more isolated than she had been at any time before during the war. Trade and communications across the Baltic had come to a complete standstill; the intermittent safe-conduct traffic westward through the Skagerrak blockade had been halted again by the Germans. With vital imports, such as coal, completely cut off, and Swedish export staples—iron ore, woodpulp, machinery—piling up in warehouses and on quays, the immediate future looked bleak for Sweden.

There were also constant fears of last-minute complications. Sweden, which had steadfastly maintained her neutrality through five years of war, had no desire to be dragged in at the last act. But the danger of involvement was ever present. Germany, though clearly on the brink of defeat, continued her stupid provocations. Throughout January, German buzz bombs and rockets passed across Swedish territory, apparently fired from bases on Bornholm Island toward Norway, for experimental purposes. Nazi flyers continued to violate Swedish neutrality and as late as April 3 a German fighter plane shot down a Swedish pursuit plane over southern Sweden, killing the pilot. Swedish public opinion, aroused by such incidents, and by the increasingly ruthless Gestapo terror in Norway and Denmark, demanded strong measures, but only a minority went so far as to urge open intervention on the side of the Allies.

In April, when it looked as though the Germans were preparing a last-ditch stand in the Scandinavian countries, the Norwegian government-in-exile repeatedly appealed to Sweden to help prevent this. One Norwegian request, apparently made with Allied approval, suggested that Swedish troops be kept in readiness near the border with orders to occupy Norway if the Germans should attempt to crush an uprising by Norwegian patriots. But the Swedish government was loth to undertake any "rash acts," and at a secret session of the Riksdag, held on April 27, the die was cast against any form of armed intervention.

Instead, the government decided to intensify its diplomatic action—which at the time already was well under way—designed to "talk the Germans out of Norway," and if possible to talk them into unconditional surrender to the Allies. The chief agent of this policy was Count Folke Bernadotte, a nephew of King Gustav, who had been negotiating for some time with the Germans for the release of Danish and Norwegian internees in Germany and gradually expanded his mission into the diplomatic field. After a meeting with Heinrich Himmler at Luebeck, on April 24, Count Bernadotte transmitted to the Allies the Nazis' limited surrender offer, which was rejected. However, the Count was successful in bettering the lot of the Scandinavian prisoners and his *démarches* contributed to the orderly surrender of the German forces in Denmark (on May 4) and in Norway (on May 7), when the Nazi collapse came.

News of the bloodless liberation of the Scandinavian sister countries was hailed with enthusiasm throughout Sweden. On May 7, thousands of students demonstrated their joy outside the Norwegian legation in Stockholm; the city was lavishly decorated with the colors of the three Scandinavian nations. King Gustav congratulated Denmark and Norway in a radio address and Foreign Minister Christian Guenther gave expression to Sweden's "overwhelming feeling of relief" that the war had ended. A long-prepared plan for bringing relief to starving Norway was immediately set in motion and the Riksdag voted additional credits for reconstruction work in Norway, bringing the total to 560,000,000 kronor. Early in June, 81 American Flying Fortresses and Liberators which had made emergency landings in Sweden during the war were released from internment and flown home via Britain; most of the crew members had already returned before the actual end of hostilities.

Following the Nazi surrender, Swedish authorities on May 8 took over the German legation in Stockholm and a few days later all other German official buildings in Sweden. The personnel of the legation, of German consulates throughout the country, and German journalists in Sweden, totaling about 300 persons, were interned and late in August repatriated to Germany. Seized German archives were turned over to the Allies but many important documents had been burned at the legation just before the premises were taken over by Sweden.

The government of National Union, which had been formed on Dec. 13, 1939 as a war emergency measure, resigned on July 31 and was replaced by a Cabinet formed exclusively from the ranks of the Social-Democratic Party which controls one half of the 230 seats in the Lower Chamber of the Riksdag. Per Albin Hansson continued as premier, with Prof. Oes-

ten Undén replacing Christian Guenther as foreign minister and the internationally known economist Gunnar Myrdal taking over the portfolio of commerce. Although the new government marked a swing to the left, Premier Hansson declared during a visit to Oslo, on September 5, that his administration "had no plans for complete socialization." On the same occasion he pleaded for a renewal of the policy of northern collaboration.

As soon as the Skagerrak blockade had been lifted, following the end of the war in Europe, Swedish minesweepers swept a channel through the dense minefields of the western Baltic and by the end of May the first Swedish cargoes were on their way to England, the United States, and South America, carrying woodpulp, ores, and other Swedish export commodities. Trade agreements were negotiated in June and July with Great Britain, Poland, Belgium, Argentina, and Norway, and a substantial import of badly needed coal from Poland was arranged for. A five months' strike in the metal industry, involving some 125,000 workers, was finally settled on July 6.

SWEET POTATOES. The October 1 estimate by the Department of Agriculture of the 1945 sweet potato crop of the United States was 69,071,000 bushels, as compared with the 1944 crop of 71,651,000 bushels and the 1934–43 average crop of 67,059,000 bushels. Louisiana led the states in production in 1945 with a crop estimated at 10,472,000 bushels. Georgia was second with 8,742,000 bushels, and North Carolina was third with 7,350,000 bushels.

SWIMMING. See SPORTS IN 1945.

SWITZERLAND. The Helvetia of the Romans and one of the oldest republics, consisting of a confederation of 22 cantons, is bounded on the north by Germany, east by Germany and Liechtenstein, south by Italy, and west by France, and covers an area of 15,944 square miles.

The chief executive authority is vested in a Federal Council (Bundesrat), consisting of 7 members elected for four years. The head of that body is the president, who, with the vice president, is elected by the Federal Assembly (National Council and Council of States) in joint session for a term of one year. While the president is ineligible for the term following, the vice president is usually elected to succeed the outgoing president. The legislative branch of the government is the Federal Assembly, consisting of two chambers—a Senate (Ständerat) and a House of Representatives (Nationalrat). The former has 44 members, or 2 from each canton. Their mode of election and their term of office depend entirely on the cantonal legislation. The Nationalrat, the larger of the two chambers, consists of 194 members, chosen by direct election for four-year terms and proportionally to the population, one for every 22,000.

At the last census, on Dec. 1, 1941, the population was 4,265,703. Of the four languages spoken in Switzerland, German is used by the majority in 19 cantons, French in 5, and Italian in one. (Three of the 22 cantons are politically divided: the 6 demi-cantons are here each considered as a canton.) In 1930, 2,924,313 persons spoke German, 831,097 French, 242,034 Italian, and 44,158 Romansh. The number of foreigners was then 355,522. The principal cities, according to the census of 1941 are Zurich 336,395; Basel 162,105; Bern 130,331; Geneva 124.431: Lausanne 92,541; St. Gallen 62,530; Winterthur 58,883; Lucerne 54,716.

Official Languages.—Switzerland now has four official languages, recently having added Romansh to the already existing German, French, and Italian. Romansh, descended from the rustic Latin of the old Roman legions, and its dialectical varian Ladin, are most commonly spoken in the canton of Grisons (Graubünden). It is similar to the tongue of Austrian and north Italian mountain folk, is spoken by about half a million people, 45,000 of whom live in Switzerland, and has been a literary language for approximately a century. In Switzerland, it is the common tongue of the mountain peoples in the vicinity of such popular tourist resorts as St. Moritz, Davos, and Arosa. Dictionaries, newspapers, and grammars are now being printed in Romansh, and laws are being compiled in the new official language.

Religion.—While nominally there is full liberty of conscience, no bishoprics may be created on Swiss territory without the consent of the federal government, nor can the Society of Jesus and its affiliated societies exercise any functions, either clerical or scholastic, in the republic. The same prohibition may be extended to any other religious order whose actions may be deemed dangerous to the state, nor may new convents or religious orders be founded. Protestants are in the majority in 12 of the cantons, and Roman Catholics in 10. The latter numbered (in 1930) 1,666,350 (41 per cent of the population), and the former 2,230,303 (57 per cent). Jews numbered 17,973 (0.4 per cent). The Roman Catholics have five bishops immediately subject to the Holy See. The Protestant Church is Calvinistic in doctrine and Presbyterian in form, and is under the supervision of the magistrates of the cantons.

Education.—Primary education has been compulsory since 1874. The constitution provides that it be cared for entirely by the cantons, whereas higher education is under direct control of the federal government. Primary schools in 1942–43, the latest year for which official statistics are available, had 443,167 pupils and 13,433 teachers. The secondary schools had 39,613 boys and 33,774 girls, with 2,498 men teachers and 379 women teachers. In addition there are a great number of commercial and technical schools in Switzerland.

There are 7 universities located at Basel (the oldest, founded in 1460), Zurich, Bern, Geneva, Lausanne, Fribourg, and Neuchâtel. In the winter of 1943–44, the student body numbered 11,785, with a teaching staff of 1,232. The government maintains at Zurich a technical high school whose student body in 1943–44 numbered 2,957. Besides, there is the Institut Universitaire des Hautes Études Internationales at Geneva, where contemporary international topics of a judicial, political, and economic nature are taught; and there is also the Handelshochschule of St. Gallen, where economic science is taught, to which school the Federal Research Institute is attached.

Agriculture.—There are in Switzerland 236,095 farms with a total area of 1,446,447 hectares (a hectare equals 2.471 acres). Of the total area, 931,180 hectares (2,301,027 acres) is unproductive. Of the productive area, 982,540 hectares (2,427,943 acres) is in forests, and the remainder is largely under grass. In 1943, 216,489 hectares were planted to cereals; 82,846 hectares to potatoes: 4.773 hectares to sugar beets, and 17,053

hectares to vegetables. Wine produced in 1944 was estimated at 960,000 hectoliters (1 hectoliter=26.42 gallons), as compared with 747,000 hectoliters in 1943. The livestock census of April 21, 1944, showed 147,339 horses, 3,317 mules and donkeys, 209,075 sheep, 218,485 goats, 1,497,436 cattle (including 817,123 cows), and 599,521 swine. The chief agricultural industries are the production of cheese and condensed milk. A total of 27,040 tons of cheese were produced in 1943, and during the same year 24,620,000 hundredweight of milk were produced, of which about 40 per cent was used for manufacturing purposes and 30 per cent for civilian consumption, the remainder being retained by the producers or used for rearing and fattening cattle.

Manufacturing.—According to a factory census of 1943 there were 9,082 factories employing 425,972 persons. Machinery, apparatus, and instrument manufacturing was shown to be the leading Swiss industry. Watch and clock making is an important branch of industry, there having been 875 factories engaged in the industry in 1943. In 1943, 59 breweries produced 22,394,000 gallons of beer (44,215,000 gallons in 1941). There are two salt-mining districts, and iron ore and manganese ore are mined.

Foreign Trade.—Swiss imports during 1943 were valued at 1,727,100,000 Swiss francs, as compared with 2,049,300,000 francs in 1942. Exports were valued at 1,628,900,000 Swiss francs in 1943, as compared with 1,571,700,000 in 1942.

Finance.—Revenue was estimated in 1944 at 389,300,000 francs as compared with 364,362,211 francs in 1943, while expenditures were estimated in 1944 at 512,600,000 francs as compared with 507,952,302 francs the year previous. The public debt (not including the railway debt) totaled 6,174,614,085 francs of which sum 279,831,785 francs was floating debt on Jan. 1, 1944.

The unit of currency is the Swiss franc. The gold parity of the Swiss franc is not definitely fixed at the present time, and it may fluctuate between 190 and 215 milligrams gold fine, per franc.

Defense.—Ordinarily Switzerland has no standing army. Service in the national militia is popular and universal. Liability for service extends from the 18th year of age to the 60th. In peace times, the number of troops in training is approximately 46,200 officers and men a year, while the total mobilization, including auxiliary services, is 650,000. Because of European war conditions, it became necessary during the war to exceed the ordinary appropriation for defense, and large funds were used from the National Defense Loan.

Transportation and Communication.—In 1943 about 85 per cent of the total length of railways of the country, 3,700 miles, was electrified; 1,900 miles of the electrified system belonged to the government and carried 88 per cent of the total traffic. Record passenger traffic totals on Swiss railways attained in 1943 were attributed to the curtailment of road traffic and to increased holiday and military travel, despite a drop in freight traffic as compared with 1941.

The telegraph and telephone lines are government-owned. In 1943, there were 3,972 post offices and 1,864,681 miles of telegraph and telephone wires. During 1943 the number of telephones being used by individual subscribers increased from 523,440 to 567,517. Direct telephone conversations between the United States and Switzerland were introduced in July 1940. Also in 1940, 634,000 private radio sets were registered.

Principal Events of 1945.—On Jan. 3, 1945, it was stated in Washington, D.C., that Switzerland had been cut off from Allied supplies because of the economic assistance Nazi Germany continued to receive from that country; and on January 25 the State Department announced that Lauchlin Currie, administrative assistant to President Franklin D. Roosevelt, would soon negotiate with the Swiss government for curtailment of supplies to Germany. British, French, and American representatives began negotiations on February 12; and six days later a Swiss Federal Council decree became effective blocking all German holdings in Switzerland pending examination of accounts by a mixed commission. This act responded to Allied demands that neutrals should not provide refuge for assets stolen by the Germans.

On February 22, American planes raiding southern Germany dropped bombs in five Swiss villages near Lausanne, killing 16 persons and seriously wounding 28. On March 4, both Basel and Zurich were struck by explosives dropped by American Flying Fortresses and Liberators, which descended to machine-gun cars on freight sidings in both cities, six persons being killed on this occasion and an estimated 50 injured. Swiss protests were prompt and vehement, and the American government promised immediate investigations and reparations, which were duly paid.

An Allied-Swiss trade agreement was reached on March 8 providing for the increased shipment of supplies through France to Switzerland; for the prevention of concealment there of property looted by the Germans; for the prohibition of iron and coal traffic across Switzerland between Germany and Italy; and for reducing Swiss exports to Germany to 5 per cent of the 1942 figure. Swiss electric current, which was formerly supplied to Germany under this same agreement, became available to France. On May 15, the Swiss ambassador to Washington, who had been representing German interests there, agreed to turn over the German embassy and German property to the United States, to be held in trust for the United Nations.

At a conference held on June 3, the Swiss Labor Party demanded that Switzerland drop her neutrality and adopt a foreign policy which would entitle the country to participate in the world security organization planned by the United Nations. The conference also demanded that domestic and foreign policies be adopted which would make possible the establishment of normal diplomatic relations with the Soviet Union; that German Nazis be expelled from the country; and that parliamentary elections be held without awaiting expiration of the normal term of the Federal Council then sitting.

On July 5, the Swiss Banker Association issued a statement replying to "attacks from abroad, especially from the United States, claiming that Swiss banks continued to accept considerable amounts of German capital under the cloak of professional secrecy." According to this statement, the amount of German holdings described by foreign reports was "greatly exaggerated." But on August 5, the New York *Times* published a communication from Bern reporting that two of Switzerland's major banking institutions had gone under, and that the country faced a "serious economic tension which might have far-reaching effects on the country's

monetary policy. . . . The Swiss public is reacting belatedly, partly because years of banking secrecy brought about a condition under which a clearing deficit for Germany alone was allowed to pile up to about 2,500 Swiss francs per capita of the population. . . . To this must be added the overwhelming government debt, for clearance was effected under government guarantee. Losses incurred by private banking establishments amount to perhaps another billion Swiss francs. Now the Allies indicate that they will demand about another 1,500,000,000 francs in German-owned assets in this country, irrespective of the date of the deposit. . . . With the Allies indicating a demand to Swiss banks to reveal all German holdings, Swiss credit institutions profess to be forced to the wall."

Meanwhile, on July 6, the Swiss government had extended recognition to the Warsaw government of Poland. In Washington, the State Department announced on July 22 that Japan had "agreed in principle" to permit Swiss officials to visit all camps in which American nationals were held prisoner. On August 5, the signing of an air-transport agreement between the United States and Switzerland was also announced in Washington, the terms of the agreement including mutual transit rights over the respective territories of the two nations, and airport facilities in Geneva and New York. Two days after the surrender of Japan to the Allies on August 14, Maj. Gen. Kiyotomi Okamoto, Japanese military attaché in Switzerland, killed himself in his home in Zurich; and on August 30, it was reported from Bern that the Swiss government had ordered Edda Ciano, daughter of Benito Mussolini, deported to Italy.

On November 2, Switzerland recognized Chancellor Karl Renner's provisional Austrian government; and when, two days later, the Allied Control Council in Berlin promulgated a law intended to force neutral countries to surrender property owned by German nationals in their territory, the Swiss government registered prompt protest. On November 9, Robert Fisher, Swiss consul, was barred by Guatemala for "infidelity in safeguarding the archives of the former German legation in Guatemala."

In Washington, D.C., the Senate Kilgore Committee created a stir on November 14 by making public German banking correspondence which revealed moves to utilize assets in Switzerland to support the German war effort. Senator Harley M. Kilgore declared these maneuvers were made possible only by the "willingness of the Swiss government and banking officials, in violation of their agreement with the Allied powers, to make a secret deal with the Nazis." Both the Swiss Foreign Affairs office and the five major Swiss banks stated on November 18 that Senator Kilgore's charges were "totally unfounded," and defended the Bundesrat's refusal to recognize the right of the Allies to control German property in Switzerland. On December 2, the Swiss Clearing House reported from Zurich that German assets in Switzerland totaled 1,000,000,000 Swiss francs ($250,000,000), of which amount only one half was subject to Allied negotiation. On December 5, Fred M. Vinson, secretary of the United States Treasury, lifted curbs on financial transactions with all foreign countries except former neutrals, including Switzerland, and former enemy states.

SYRIA. A republic on the eastern shore of the Mediterranean, bounded on the north by Turkey, on the east by Iraq, on the south by Transjordan and Palestine, and on the west by Lebanon and the Mediterranean Sea. Formerly administered by France under a mandate of the League of Nations, Syria assumed during 1944 full responsibility for its own future through a series of steps by which the various functions of government were transferred to the Syrian authorities, the rate of Syrian currency on the international market being guaranteed under an Anglo-French agreement. Syria's independence has been recognized, also, by the United States, the Soviet Union, China, and other states. On Feb. 26, 1945, Syria declared war on Germany and Japan, and in April and May, participated in the United Nations Conference and became a signatory to the United Nations Charter, the Syrian Parliament ratifying the signature on September 4.

Syrian territory extends between 300 and 400 miles eastward from the Mediterranean. It is traversed by a 300-mile stretch of the Euphrates River, and its narrow northeastern section reaches the right bank of the Tigris above Mosul. On the Mediterranean side it is separated from the sea for some 125 miles by Lebanon, north of which, along the coast, lies the semiautonomous Syrian district of Latakia (Syrian, Ladhigiyyah; French, Lattaquié), with its port city of the same name, from which the district has become known as Latakia. The district of Djebel (Jebel) Druze, formerly autonomous, merged fully with Syria in September 1944. But the sanjak of Alexandretta (the Hatay, known to the Turks as Iskenderun), which formed part of Syria until 1939, was in that year ceded to Turkey by France, in the face of violent Syrian opposition, and the cession has never been recognized by the Syrian government or people.

The area of Syria (according to Fighting French figures for 1942) is 171,107 square kilometers (66,064 square miles); the estimated population (1943), 2,860,411. Damascus (Damas, pop. 261,010) is the capital; other important cities are Alep (Aleppo, 257,337), Homs (64,940), Hama (60,225), and Latakia (Ladhigiyyah, 38,500).

Government.—The Syrian Parliament elected Shukri Bey al-Quwatli to the presidency of the republic for a five-year term on Aug. 17, 1943, and he nominated Saadallah el Jabry to the premiership of the first constitutional ministry under the new independent regime. Syria's independence had been proclaimed on Sept. 16, 1941 by Gen. Georges Catroux on behalf of the Free French, and on September 27 was officially proclaimed. In December 1943 General Catroux transferred legislative and administrative functions to the new government effective as of Jan. 1, 1944. Great Britain had recognized Syria's independence on Oct. 28, 1941. Full and unconditional recognition was accorded by the Soviet Union in September 1944, and by the United States on September 19, through the designation of George Wadsworth as United States minister to both Syria and Lebanon. In regard to Syria's relations with its neighboring states, on March 22, 1945, negotiations which had been under way for some time among seven Arab states (Egypt, Iraq, Saudi Arabia, Syria, Lebanon, Transjordan and Yemen) had their outcome in the setting up of the Arab League (q.v.). Syria's representative signed this pact, and on March 31, 1945, it was ratified by the Syrian Parliament.

The People.—Although Syria has known throughout its long and turbulent history a number of peoples who have overrun it or infiltrated into it, the country is today predominantly Arab

in culture and language, sharing these two features as well as other national attributes with the rest of the Arab world. The majority of the population (some 75 per cent in 1935) are Moslems, mainly of the Sunni sect, with minorities of Alaouites (Alawiyyah), Ismailis (Isma'illyyah) and Druses. There are also Christians (about 25 per cent in 1935) of many denominations, principally Greek Orthodox. Other churches represented are the Greek Catholic, the Syriac, and the Armenian (both of which have two branches, the Orthodox and the Uniate), the Protestant, and the Maronite. In 1935 about 0.5 per cent of the population were Jews.

In addition to the system of state, religious, private, and foreign schools, there is a Syrian University at Damascus, founded in 1923, which had in 1938 faculties of law, medicine, pharmacy, dentistry, and midwifery. There is also an Arab academy in the capital; and at Selemiye and Bekaa there are agricultural colleges.

Production.—Agriculture is of prime importance in Syria. The estimated wheat yield in 1943 was 624,280 metric tons, and barley, 330,485 metric tons; other leading crops were grapes, olives, and sorghum. Cotton, tobacco, seseme, and hemp are also produced on a considerable scale. Apricot, olive, pistachio, almond, banana, mulberry, and citrus-fruit trees yield valuable crops. Besides large numbers of sheep, livestock includes camels, oxen and asses; the wool clip for 1943 was put at 2,500 metric tons.

Syrian industries are of comparatively minor, but growing, significance. Silk thread has long been made. Other leading manufactures are beverages, biscuits, cement, brass and leather goods, copperware, macaroni, matches, soap, and textiles.

Although the presence of petroleum has been indicated, the country is entirely dependent upon imports for its fuel requirements. Gypsum is widely distributed, and marble and building stone abound in some regions, while traces of phosphates, lead, copper, chrome, and nickel have also been found.

Foreign Trade.—Most recent available figures for foreign trade (for Syria and Lebanon combined) were for 1943, during which imports amounted to 246,171,000 Syrian pounds, and exports to 168,065,000 Syrian pounds. (The Syrian pound, both in 1943 and 1945 equalled between 45 and 46 cents in U.S. currency.) The chief imports were foods and beverages, various animal and vegetable products, textiles, chemicals, tools and machinery; the leading exports included textiles, vegetables, and fruits. About 75 per cent of the imports were from Turkey; about 50 per cent of the exports went to the United States.

Communications.—Railroads before the Second World War (for Syria and Lebanon combined) included some 666 miles of standard gauge and 224 miles of narrow gauge. All the lines were inland, however, the sea-coast terminals being in Lebanon, at Tripoli and Beyrouth. Extensions of the Palestinian railroads into Lebanon during 1942–43 made direct rail service possible between Egypt and Syria, and thence into Turkey. Highways for motor transport have been well developed, particularly across the desert; notably, in 1942 the trans-desert route of 550 miles linking Damascus with Baghdad, in Iraq, was made into a surfaced road. But although motor traffic is normally a leading form of transport in Syria, it was still restricted (during 1945) by inadequate equipment. There is air transport service, however, between Damascus and Baghdad and between Damascus and Cairo. Damascus is a port for a number of international air lines.

Principal Events.—Significant political and economic developments during 1945 have been mentioned in preceding sections. Apart from these, the most noteworthy events for Syrians during the year were those relating to the dispute of the governments of the Levantine states with France over French military establishments in Syria and Lebanon, and the agreement to which it led. The French had been asked by the governments of Syria and Lebanon to release Levantines conscripted into the French territorial forces for local service. Some battalions of the Levantine troops had been transferred to Syrian control. But when the French forces in Syria were reinforced by some 500 men from the French national army, Syria broke off negotiations with the French (May 21, 1945). On May 27 street fighting broke out at Hama, and on May 28 at Homs. On May 29 the French dropped bombs on a Syrian-held strong point at Damascus, and bombarded the area of the Syrian Parliament building with artillery fire, later sending troops to occupy it. On May 31 British Prime Minister Winston Churchill (acting, reportedly with the approval of the United States administration), demanded that the French order their troops to cease fire and withdraw to their barracks. British troops in the Levant intervened to enforce these demands. The French, declaring that they had intended to keep their promise to give the Levantines full independence, accused the British of conniving with hostile local elements, and of having supplied arms to the Syrian forces. The British, denying that they had fomented resistance by the Syrians, blamed the French for having brought on the clash, and declared that they themselves had intervened to avoid the danger of general unrest in the Middle East, which could have had serious effects upon the United Nations war effort. The Soviet Union, in the meantime, had asked that the dispute be settled quickly, since it was detrimental to the outlook of the San Francisco Conference. A French proposal for a five-power conference on the Middle East (to include the Soviet Union and China), while favorably regarded by the Syrian authorities, was rejected (on June 16) by the British in favor of a conference of representatives from France, Britain, and the United States. In the meantime, on June 6, President Shukri Bey al-Quwatli of Syria, banning French newspapers from the country, declared that the Syrians would not tolerate the French in Damascus, and on June 7 the Council of the Arab League demanded complete evacuation of the French military forces from the Levant, and the release of the Levantine conscripts. The Syrian government moved to dismiss French officials and to end the operation of the French courts. On July 7 the French agreed to accept the demands of the governments of Syria and Lebanon that its Levantine recruits be released for service with the two Levantine states, and soon thereafter began evacuating their troops. On July 25 the French and British high commands in the Levant reached a formal agreement whereby the French forces would withdraw from eastern Syria (retaining control, however, of certain airfields), but would still be stationed along the Levantine coast. The evacuation of the French troops and civil officials from Syria was said to have involved a general exodus of French priests and nuns, secular teachers, and merchants, from

Syria. Syrian casualties during the fighting (in May and early June) were said to have numbered 800 killed and 2,500 wounded.

On August 21 the government of Premier Fayez el Khoury resigned, being replaced on Oct. 1, 1945, by a government consisting of an all-national bloc under Saadallah el Jabry, a former premier. See also LEBANON.

T

TABLADA, José Juan, Mexican poet, author, and educator: b. Mexico City, 1871?; d. New York City, Aug. 2, 1945. José Juan Tablada's poetry was so popular in Mexico that he had often been called that nation's unofficial poet laureate. His 20 books of poetry and prose sold by the millions in Spanish-speaking countries. Educated at the Military School of Chapultepec, the National Preparatory School of Mexico City, and the University of Tokyo, Tablada intended to become an artist, but he found journalism a more lucrative career. He worked for *El Universal* in Mexico City and other newspapers, including *La Prensa* of San Antonio, Texas, and *Opinion* of Los Angeles. He also undertook special diplomatic missions in Venezuela, Ecuador, and Colombia for Presidents Porfirio Diaz and Venustiano Carranza. An authority on art, he had served as professor of the history of fine arts at the Academy of Fine Arts at Mexico City, professor of Mexican archaeology at the Mexican National Museum, and as professor of Mexican literature and language at the National Preparatory School. Tablada introduced a type of Japanese writing form and philosophy into Spanish lyric poetry and was a pioneer in the ideographic verse. He had written articles for *The Arts, International Studio, Theater Arts Monthly,* and *Parnassus,* and was instrumental in obtaining early recognition in the United States of such Mexican artists as Miguel Covarrubias and Carlos Orozco Romero.

TADZHIK SOVIET SOCIALIST REPUBLIC. See UNION OF SOVIET SOCIALIST REPUBLICS.

TAHITI. See FRENCH OCEANIA.

TAIWAN. See FORMOSA.

TALC. Domestic mined production and sales of talc, pyrophyllite, and ground soapstone in 1944 totaled 418,228 short tons, as compared with 436,249 tons in 1943; quantities used by producers were 353,209 short tons in 1944, as against 382,668 tons in 1943. Sales amounted to 398,863 short tons valued at $5,017,462 compared with 412,868 tons valued at $5,121,414 in 1943. Only sales of crude material increased either in quantity or value.

TANGANYIKA TERRITORY. See BRITISH EAST AFRICA.

TANGERINES. See CITRUS FRUITS—*Oranges.*

TANGIER. See under MOROCCO.

TANNU TUVA. An autonomous Soviet province in Central Asia, northwest of Mongolia, having an area of about 64,000 square miles and a population of more than 90,000, of whom about 12,000 are Russians. The vast majority of the people are Tuvinians, and the remainder Mongols and Chinese. Tannu Tuva was once part politically of Outer Mongolia, and was under Chinese domination during the Manchu dynasty. Czarist Russia began colonizing and otherwise extending her influence over Tuva in the 19th century, and in 1911 a popular movement arose which brought trade with China virtually to a close. Czarist Russia thereupon announced that Tuva would be taken under her protection, and in 1916 a czarist miliary force was sent there to protect Russian colonists. Czarist control was overthrown by revolution in 1917, and a Soviet regime came into being a year later. White Guard bands stationed there were defeated by Tuva partisans in July 1919. In October 1945, it was announced in Moscow that Tuva would elect two deputies to the Union of Soviets and the Soviet of Nationalities, thus becoming, as an autonomous region of the Russian Soviet Federated Socialist Republic, an integral part of the Soviet Union. The Tuvinians are mainly cattle raisers, and the chief exports are hair, hides, and wool. The capital city is Kysyl Khoto (pop. about 12,000).

TARAWA. See WESTERN PACIFIC ISLANDS, BRITISH, Section 2.

TARDIEU, André Pierre Gabriel Amédée, French journalist, diplomat, and statesman: b. Paris, Sept. 22, 1876; d. Menton, Alpes Maritimes, France, Sept. 15, 1945. Many times minister and three times premier of France, Tardieu was one of the most representative men in French politics between the two wars. After attending the Lycée Condorcet and the École Normale Supérieure, Tardieu entered the diplomatic service in 1897 as attaché at Berlin and the next year was attached to the Ministry of Foreign Affairs. In 1901 he joined the staff of *Le Figaro* and went from there to *Le Temps,* returning to Berlin as correspondent for that paper. In 1905 he was made chief political editor of *Le Temps.* During this period he lectured on modern history at the École des Sciences Politiques and the École Supérieure de la Guerre. He was elected to the Chamber of Deputies in 1914, and with the outbreak of the First World War he organized the first foreign press service for the War Office, and then joined the staff of General Foch. With the rank of captain, he was sent to the 44th Alpine Chasseurs, a unit of the famous Blue Devils. He was mentioned for bravery three times in dispatches, and was wounded, necessitating his retirement in 1916. From May 1917 to November 1918 he was in the United States as head of the French War Commission. After the armistice, he served as minister of liberated regions (1919–20) and as French plenipotentiary at the peace conference at Versailles (1919–20), where he was credited with having written a large part of the Versailles Treaty.

In 1926 he returned to the Chamber of Deputies as minister of public works in the Poincaré Cabinet, becoming minister of the interior in 1928. On Oct. 31, 1929, he was called to the premiership by President Doumergue, but on Feb. 17, 1930, his ministry was overthrown. On

March 2, 1930, he formed a new Cabinet with himself as premier and minister of interior. Although under constant attack from the extreme Right and Left, the ministry maintained itself until Dec. 4, 1930, when it was defeated in the Senate by eight votes, and Tardieu resigned. He then served as minister of agriculture in the Laval cabinet (1931–32) and as minister of war in 1932. On Feb. 20, 1932, he formed a third Cabinet, in which he became premier and minister of foreign affairs. This Cabinet, composed entirely of representatives of the Right Center parties, lasted until June 1932. When ex-President Doumergue formed the government of national union in February 1934, he appointed Tardieu and Herriot as ministers of state without portfolio. A four-man directorate headed by Premier Doumergue, to which Tardieu also belonged, was set up to handle foreign affairs.

TARIFF COMMISSION, United States. An independent executive agency of the United States government, created by act of Congress, Sept. 8, 1916, as a nonpartisan investigating and fact-finding body to assist the president and the Congress in matters pertaining to tariff and to foreign commercial policy. The present laws that prescribe the function of the Tariff Commission are the Tariff Act of 1930 as amended (sects. 330–341); section 350, the Trade Agreements Act; and section 22 of the Agricultural Adjustment Act as amended.

Beginning in the fall of 1939, the commission directed its activities largely to immediate war problems and to giving assistance to defense agencies. As war agencies succeeded defense agencies, the co-operative activities of the commission increased, and every possible assistance was given to those charged with handling the economic phases of the prosecution of the war. Throughout the war the commission continued its assistance to war agencies.

During 1945 the greater part of the commission's work was on matters relating to postwar problems undertaken largely at the request of Congress or congressional committees. A discussion of the more important of these projects follows.

Senate Resolution 341, 78th Congress, directed the Tariff Commission, under certain assumptions as to national income and tariff treatment, to estimate, for all articles imported in 1939 with a value in excess of $100,000, postwar production, consumption, imports, and employment. Data relating to more than 450 articles or groups were closely examined in order to determine for each of them what would be the probable course of postwar production and imports under the assumptions set forth in the resolution. The report was sent to the Senate in April 1945 and was printed in a volume entitled *Post-War Imports and Domestic Production of Major Commodities.* (S. Doc. 38, 79th Congress.) The information in this volume was also issued in 9 separate documents according to commodity groups.

The Ways and Means Committee of the House of Representatives and the Committee on Finance of the United States Senate have asked the Tariff Commission to supply information which would aid in the consideration of postwar problems as they relate to the foreign trade and commercial policy of the United States. In response to these requests the following work is in progress: (1) A report is being prepared on the foreign trade position of the United States, emphasizing the problems of commercial policy to be faced in the postwar period. (2) Reports are being drafted on a large number of major commodities or industries which have been affected by the war. With respect to each of the industries, these reports will review conditions of production and competition before the war and will indicate the changes in these conditions made by the war and the problems which will be encountered after the war due to these changes and to the general economic situation which may be expected to exist in postwar years. There will be approximately 75 reports in the series designated as "War Changes in Industry." Twelve reports have already been issued. (3) The commission is preparing a review of foreign commercial policies, with particular reference to those changes which have been made since 1929 in the international trade policies of foreign countries as they affect the industry and trade of the United States. As part of this study the commission has issued 29 reports on trade problems of the Latin American republics.

The Trade Agreements Act, which was passed in June 1934 for a 3-year period and which has been extended in 1937, 1940, and 1943 and with increased authority in 1945, requires that information and advice be sought from the Tariff Commission in connection with the negotiations of trade agreements. In this connection it is the particular and continuing function of the commission to present information regarding imported articles which may be made the subject of concessions by the United States in trade agreements. Work in connection with trade agreements is expected to bulk large among the activities of the commission in the next two years.

Commissioners.—Oscar B. Ryder, chairman; Lynn R. Edminster, vice chairman; Edgar B. Brossard; E. Dana Durand; George McGill. E. M. Whitcomb was acting secretary in 1945.

OSCAR B. RYDER,
Chairman, U.S. Tariff Commission.

TASMANIA. See AUSTRALIA.

TAXATION. See INCOME TAX LAW, NEW; LAW.

TCHAD. See FRENCH EQUATORIAL AFRICA.

TCHEREPNIN, Nikolai Nikolaevich, Russian composer, pianist, and conductor: b. St. Petersburg (now Leningrad), Russia, May 14, 1873; d. Paris, France, June 28, 1945. Primarily a composer of stage music, Tcherepnin followed the Russian nationalist tradition of Musorgski and Rimski-Korsakov, although certain of his works bear the influence of French impressionism. He is probably best known for his ballets, *Le Pavillon d'Armide* (1903), and *Narcisse,* both presented by Sergei Diaghilev's Ballet Russe; and by *A Russian Fairy Tale,* produced by the famous dancer, Anna Pavlova.

Among his other works are the operas, *The Marriage Broker, Poverty Is Not a Crime,* and *Ivan the Chancellor;* the ballets, *The Masque of Red Death, The Tale of the Princess Oulyba, Dionysius,* and *The Romance of a Mummy;* Prelude to Rostand's play, *La Princesse Lointaine, Scene in the Witches' Cavern* from *Macbeth, From Land to Land,* and *Eight Miniatures* (after a Russian illustrated alphabet), all for orchestra; a piano concerto, a string quartet, and the cantata, *Pilgrimage and Passions of Virgin Mary.* Tcherepnin completed Musorgski's unfinished opera, *The Fair at Sorochintzy,* which was per-

formed at the Metropolitan Opera in New York in 1930. See also under MUSIC—*Necrology.*

TEDDER, SIR Arthur William, British air officer: b. Stirlingshire, Scotland, July 11, 1890. British Air Chief Marshal Tedder contributed in large measure to Allied victory on the European continent as General Eisenhower's deputy supreme commander. Expert in the co-ordination of land, sea, and air forces, he brought to his invasion command post experience gained in months of fighting the Italians and Germans in Africa, where he was teamed with Gen. (now Field Marshal) Sir Bernard L. Montgomery for the great El Alamein drive in October 1942, and the subsequent Tunisian campaign, as air chief marshal. He became Eisenhower's second in command in December 1943, and in October 1944, assumed additional duties as chief of Allied air operations in western Europe. He was one of the signers of the German surrender document in Berlin on May 8, 1945. On Oct. 19, 1945, announcement was made of his appointment to succeed RAF Marshal Portal as Chief of the British Air Staff, and first and senior air member of the Air Council.

TELEGRAPHY, Progress in. One of the significant advances in the communications field during 1945 was the installation of an experimental radio beam telegraph system between New York City and Philadelphia and the development of a plan for a nationwide network. The new radio system over which messages are flashed between cities operates without wires on very high frequencies—2,000 to 11,000 megacycles. Repeater stations are located on hills or mountains roughly 30 miles apart, depending on line of sight, and automatically relay the telegraph signals. Special antennas equipped with parabolic reflectors transmit the signals in a narrow beam directly to the point desired, using power of less than one watt. Whereas it has been possible to send over a pair of wires as many as 144 telegrams simultaneously in each direction, it will now be practical to transmit 1,080 messages without wires and with the speed of light on a single radio beam. Engineering tests on the New York-Philadelphia system indicate that this method of transmission will materially reduce circuit interruptions due to storms, falling trees, and electrical disturbances and will improve the quality, dependability, and speed of telegraph service.

As a result of experience with the New York-Philadelphia circuit, the Western Union Telegraph Company plans to establish radio relay telegraph systems between major cities in the United States within the next seven years. This network will ultimately replace many of the familiar pole lines and hundreds of thousands of miles of wire in the 2,300,000 mile telegraph system. The first step in this improvement program is known as "The New York-Washington-Pittsburgh Triangle." Establishment of this "triangle" in time will permit the removal of approximately 2,500 miles of pole lines, with some 54,000 miles of wires and 180 miles of aerial and underground cable.

Some additional developments of the telegraph industry follow:

Transatlantic telemeter service between Washington and London uses Varioplex equipment and operates over a pair of wires or a carrier channel between Washington and New York, and a submarine cable between New York and London. The system provides 12 two-way telegraph channels, each of which is equipped with a sending and receiving teleprinter at each end of the circuit. Automatic cryptographic units known as "Telekrypton," provided as auxiliary units, code and decode messages automatically during transmission.

An important by-product of telegraph research is a new device called the "Concentrated-Arc Lamp." An intense cathode spot, which does not change its position, provides a point source of light as small as 0.003 inches in diameter. Efficiencies of from one to two candlepower per watt are obtained with the lamp. In addition to its use for purely telegraph communications purposes, the Concentrated-Arc Lamp undoubtedly will find important applications in such fields as lensless projection and enlargement, optical testing, photography and in many new devices which a brilliant point source will make possible.

A large volume of telegraph traffic is being handled by Telefax (the Automatic Facsimile Telegraph). The use of Telefax includes the handling of airlines reservations and the relaying of train orders by railroads. Facsimile messages and pictures have been transmitted experimentally over a microwave radio beam circuit, and it is expected that extension of these circuits will permit development of a nationwide Telefax network.

A portable device which measures and records electrical impulses was developed for use in testing teleprinter transmission. Without stopping circuit operation, this device measures transmission losses and facilitates the adjustment of equipment.

An improved method was developed for synchronizing Multiplex distributors which makes four-teleprinter operation possible on international radio circuits. Telegraph engineers also adapted Multiplex equipment for use on the submarine cables to Alaska, replacing cable code operation. This increased the capacity of the cables by 400 per cent.

GEORGE P. OSLIN,
Western Union Telegraph Company.

TELEPHONE PROGRESS. Although 1945 marked the end of the Second World War, there was little letup in the war-born demands on the telephone facilities of the nation. The prime objective of telephone people in 1945 continued to be to meet fully the vital communication needs of the government, the armed forces and essential war industry, even though that prevented meeting all the demands of the home front for telephone service. The co-operation and patience of telephone users indicated that they approved wholeheartedly the policy of meeting war needs first.

Telephone manufacturing plants, producing heavily for the armed forces, could supply but little in the way of additional telephone equipment for the home front during the first half of the year. Facilities which could be manufactured for civilian use were assigned generally to purposes essential to the war and to the public welfare. This meant that more and more applications for telephone service, particularly residential service, had to be placed on a "waiting list." Before year end, more than 2,100,000 applicants were waiting for telephones. At no time, however, did war-essential communication needs go unfilled.

The arrival of peace did not automatically insure service to all who wanted it. First, it was necessary to reconvert telephone factories from the making of military communications equipment and electronic devices to the full-

scale manufacture of peacetime telephone facilities. Instruments, central office equipment, wire and cable had to be produced. Buildings had to be erected or enlarged to house new switching equipment, which in turn had to be connected into the existing system without interrupting service . . . a complex, intricate operation involving highly skilled handwork. For example, literally millions of electrical connections must be soldered during the installation of an average metropolitan office.

It was expected that 1,000,000 telephone sets for civilian use would be made during the year. This number would be sufficient to fill the orders held initially because of instrument shortages (about one third of the total). Rapid progress in filling the remaining orders, which is dependent on the availability of central office equipment, wires and cable as well as telephone instruments, is expected during 1946.

When the war ended, the Bell System immediately got underway a $2,000,000,000 construction program, the initial purpose of which was to speed the expansion of telephone facilities so that the system, at the earliest moment, would be able to supply service to all who want it.

(1) Telephones in Use.—Despite war-created shortages, the number of telephones in use increased during 1945. At the year's end, there were some 27,700,000 in operation in the United States, 21,772,000 owned by the Bell System and substantially all the remainder by about 6,100 independent companies and more than 60,000 rural systems. This compared with about 26,859,000 telephones in the United States at the end of 1944.

(2) Local Calls.—With more telephones in service than ever before, the number of completed local calls reached an average of approximately 104,000,000 a day for the year, compared with an average of approximately 101,800,000 a day for the previous 12-month period. Notwithstanding severe shortages of facilities and manpower, telephone employees handled this record volume of calls with traditional courtesy and efficiency.

(3) Long Distance Service.—After setting an all-time record in 1944, the volume of long distance telephone calls continued to climb to new highs in 1945. The daily average of completed toll and long distance calls was about 4,900,000. That compared with an average of 4,300,000 per day for the year ended in mid-1944. During the first half of 1945, the long lines department of the American Telephone and Telegraph Company reported a total of about 94,800,000 calls completed over the longer routes, compared with approximately 85,600,000 during the same period in 1944.

To handle the increasing volume without being able to add sufficiently to facilities required all the ingenuity telephone engineers could command. Intensive use was made of available equipment by means of the "carrier" technique which permits the transmission of many telephone conversations simultaneously over one or two pairs of wires. When long distance lines were especially crowded, users were asked by the operator to limit their calls to five minutes. Priority handling continued to be given to urgent war-essential messages. Under that arrangement, urgent toll calls having to do with the war effort or with public health and safety were put through on a preferred basis.

Despite wartime limitations, toll connections on the average were completed in 3.3 minutes during the first half of 1945, 84 per cent being completed while the calling party remained at the telephone.

With war's end, long distance traffic continued heavy as business swung into the job of reconversion and as hundreds of thousands of returning service personnel placed many thousands of calls from debarkation ports to families throughout the country.

(4) War Production.—The scope and volume of the telephone industry's contribution to war could not be revealed until war's end. Then it was learned by the public that telephone laboratories played a major part in the development of many outstanding electronic devices such as radar and electrical gun directors.

During the war, telephone factories had devoted practically their entire production capacity to building communication equipment for the Allied armies, navies and air forces. In addition to field telephones and switchboards in great quantities, they supplied more than 1,600 electrical gun directors and computers; more than 700,000 airborne, tank and artillery radio receivers; nearly a half million radio transmitters; more than 1,700,000 microphones and 1,400,000 headsets; and more than 4,300,000 miles of wire in cable. One telephone manufacturing organization—the Western Electric Company—was the largest source of radar equipment.

(5) Telephone Developments.—Resumption of experimental projects and expansion of services and facilities introduced before the war promise many advances in telephony in the near future. Coaxial cable systems are a development that permit handling more long distance telephone calls per circuit. The cable consists essentially of a wire conductor enclosed within a copper pipe which serves as both a shield and a return conductor. This type of cable, with amplifiers and other auxiliary equipment, allows the transmission of as many as 480 conversations simultaneously, without mutual interference, over a single pair of circuits. It also provides the broad band channels required for transmission of television signals.

Now under construction or planned are coaxial cables that will extend from New York to Miami and across the southern part of the country to San Francisco. Additional routes will run from New York to Chicago and thence to New Orleans. Designed primarily to accommodate increased telephone traffic, the cables, together with others to be added as needed, could be used in the development of a television network capable of carrying programs to a large portion of the country.

Development of an experimental radio-relay link went forward during 1945. By that method, microwaves are beamed from relay station to relay station. A radio-relay system is being constructed between New York and Boston with stations located about 30 miles apart along the route. If successful, it could provide an additional link in the nationwide system capable of multiplex telephony or of television program transmission. The major purpose of the experimental system will be to determine the merits of transmission by radio-relay in comparison with coaxial cable and conventional telephone wires.

Although two thirds of the farms of the nation are already within reach of present telephone lines, plans are going forward aggressively

for extension of service to even more rural families. About 80 per cent of all farms are close enough to existing telephone lines to be provided service without a construction charge to the user. In order to reach other farms economically, telephone laboratories are working on a practical system of transmitting telephone conversations over electric power lines. High-strength steel wire, requiring fewer poles, and rubber-covered wire that can be laid underground are other developments that will help bring telephone service to more rural areas. And to reach those who live in remote localities, the telephone companies are studying the possible use of microwave radio systems.

Experiments preceding the introduction of mobile radio-telephone service for vehicles are being conducted by the Bell System. Calls between a vehicle and any telephone travel part of the way by wire and part of the way by radio. Inauguration of such a system on a commercial basis will make possible voice communication between a properly equipped vehicle and any telephone in the country.

Overseas telephone service, limited to government and press calls to most countries during the war, was reopened in 1945 to many points for general use, with lower rates in effect. It is planned to extend overseas service so that any telephone user in the nation will be able to reach practically any telephone in the world from his own home or office.

Announcement was made during the year of progress in plans whereby a long distance operator, without the assistance of another, could dial direct any telephone in the country. Such an operating practice is now in use on certain circuits. On a nationwide basis, each telephone exchange would have its distinctive code which could be dialed by any operator.

In addition, the postwar construction program of the industry will provide the facilities necessary to restore service fully to its high prewar standards. It will mean reintroduction of such items as colored telephones, special wiring plans and switching keys, extension and portable telephones, gongs and signal lights, that made prewar service complete. And it will mean restoration of telephone plant margins generally so that all who want service may have it promptly.

(6) TELEPHONE DEVELOPMENT OF THE WORLD

Countries	Date of statistics	Total no. of telephones
North America:		
United States	Jan. 1, 1945	26,859,000
Canada	Jan. 1, 1943	1,627,775
Central America	Jan. 1, 1942	36,797
Mexico	Jan. 1, 1944	200,000
West Indies—		
Cuba	Jan. 1, 1944	78,000
Puerto Rico	Jan. 1, 1944	23,272
Other West Indies	Jan. 1, 1942	36,064
Other places in North America	Jan. 1, 1942	25,000
Total		28,885,908
South America:		
Argentina	Jan. 1, 1942	511,880
Bolivia	Jan. 1, 1942	2,680
Brazil	Jan. 1, 1943	331,000
Chile	Jan. 1, 1942	96,641
Colombia	Jan. 1, 1942	43,717
Ecuador	Jan. 1, 1942	8,000
Paraguay	Jan. 1, 1942	3,881
Peru	Jan. 1, 1942	36,344
Uruguay	Jan. 1, 1942	57,822
Venezuela	Jan. 1, 1942	36,138
Other places in South America	Jan. 1, 1942	3,552
Total		1,131,655
Europe:		
Belgium	Jan. 1, 1940	428,752
Bulgaria	Jan. 1, 1943	35,947
Czechoslovakia	Jan. 1, 1938	215,853
Denmark	Mar. 31, 1943	511,622
Eire	Mar. 31, 1943	49,269
Finland	Jan. 1, 1941	186,548
France	Jan. 1, 1940	1,622,680
Germany	June 30, 1939	4,226,504
Great Britain and Northern Ireland	Mar. 31, 1943	3,575,000
Greece	Jan. 1, 1940	54,404
Hungary	Jan. 1, 1943	244,934
Italy	Jan. 1, 1941	685,815
Netherlands	Jan. 1, 1942	498,223
Norway	June 30, 1940	255,712
Poland	Mar. 31, 1939	294,828
Portugal	Jan. 1, 1943	86,512
Rumania	Jan. 1, 1943	102,742
Russia (USSR, incl. Siberia)	Jan. 1, 1939	1,272,500
Spain	Jan. 1, 1944	393,000
Sweden	Jan. 1, 1943	1,034,000
Switzerland	Jan. 1, 1944	567,517
Yugoslavia	Jan. 1, 1940	72,000
Other places in Europe	Jan. 1, 1942	214,706
Total		16,629,068
Asia:		
British India	Mar. 31, 1939	83,378
China	Jan. 1, 1941	160,000
Japan	Mar. 31, 1939	1,367,958
Other places in Asia	Jan. 1, 1942	333,074
Total		1,944,410
Africa:		
Egypt	Jan. 1, 1940	67,983
Union of South Africa	Mar. 31, 1941	235,686
Other places in Africa	Jan. 1, 1942	153,751
Total		457,420
Oceania:		
Australia	June 30, 1943	766,846
Hawaii	Jan. 1, 1944	67,602
Netherlands East Indies	Jan. 1, 1941	56,377
New Zealand	Mar. 31, 1943	238,441
Philippine Islands	Nov. 1, 1941	36,890
Other places in Oceania	Jan. 1, 1942	5,897
Total		1,172,053
Total world (est. as of Jan. 1, 1945)		50,220,514

NOTE: The above statistics incorporate the most recent information available on Oct. 1, 1945.

FRED BEARD,
Information Assistant, American Telephone and Telegraph Company.

TELEVISION. The biggest news to the television industry in 1945 was the assignment of definite frequency allocations by the Federal Communications Commission, permitting a resumption of television transmitter and receiver manufacture as soon as necessary parts became available. The assignments are subject to change only in the event that subsequent international agreements require it, and this is rather unlikely.

The television assignments were made in two steps because of insufficient information on the performance of frequency-modulation and television equipment in various parts of the region from 44 to 108 megacycles. This region was left unassigned when seven higher-frequency channels between 174 and 216 megacycles, each the standard 6-megacycle width, were assigned to television on May 17, 1945. Then, when the approaching end of the war called for fast action, differences of opinion were resolved and television's remaining six channels were placed at 44–50, 54–60, 60–66, 66–72, 76–82, and 82–88 megacyles, which is roughly where commercial television was during the war. In addition, the FCC (Federal Communications Commission) provided space for experimental television, presumably in color, in the ultra-high-frequency region from 480 to 920 megacycles.

The radio industry has invested approximately $25,000,000 in research and development to prepare television for the postwar public. Probably never before has the product of a great new industry been so completely planned and so highly developed before it was offered to the public.

Large Pictures.—Development by RCA (Radio Corporation of America) of a process for molding large lenses from clear plastic makes projection of large pictures both economical and practical for home television receivers. Sample receivers demonstrated in 1945 by NBC (National Broadcasting Company) had an 18- by 24-inch screen, with a clarity and brilliance comparable to home movies and with no noticeable distortion at any viewing angle.

The optical principle of the new projection television system has been used by astronomers for many years, but the high cost of the special hand-ground correcting lens has hitherto made the system feasible only for elaborate theater projection television systems such as were demonstrated before the war.

The lens-molding process consists of applying high pressure to a clear thermoplastic material such as Lucite or Plexiglas while confined in a heated mold. After cooling, a hole is bored in the center of the plastic lens to accomodate the neck of the cathode-ray television tube. The lens is then ready for use, with no polishing or finishing being required. Though softer than glass, the plastic lens has slightly better optical qualities.

In astronomy, spherical mirrors are used in the Schmidt camera for star photography. Distortions inherent in this mirror are corrected by an aspherical lens mounted at the center of the curvature of the mirror. In the television adaptation of this principle, the spherical mirror is used both to magnify and reflect the image produced on the 3-inch diameter fluorescent screen of a small cathode-ray tube. The image so reflected is passed through the special plastic lens to correct the spherical aberration of the mirror and thus make straight lines straight. The flat mirror at the top of the cabinet merely changes the direction of the light rays, so that the image appears on the translucent vertical screen set into the front of the cabinet.

Projection television systems require a long light path. This is achieved by aiming the cathode-ray tube downward at the spherical mirror just above the floor, then letting the light rays come back past the tube and through the plastic lens on up to the mirror set diagonally across the top rear corner of the cabinet. The necessary light path of five feet or more is thus obtained with a cabinet depth of about a foot, the same as in conventional home radios.

A similarly designed General Electric large-screen receiver uses a 5-inch cathode-ray tube and gives a 16- by 22-inch picture.

Direct Viewing.—Receivers with large-screen cathode-ray tubes are also planned. The 20-inch diameter tube gives a 13½- by 18-inch picture. Advantages over projection systems are better highlight brilliance that permits viewing in a brilliantly lighted room, better contrast ratio, wide angle of viewing, better resolution, longer life, and simpler focusing, while disadvantages are the slight curvature of the screen and the need for a special mounting because of customer objections to a bulky deep cabinet. The tube is 31 inches long but one manufacturer is using a retractable mounting that swings the tube vertically when not in use so that it can be mounted in a 24-inch deep cabinet. The tube projects forward out of the cabinet when in use. Direct viewing tubes can be watched from practically any angle, whereas viewers must be almost directly in front of the screen for other systems. Also, all elements are lined up within the tube and only electrical adjustments are needed during use, whereas mirror and lens systems require both electrical and mechanical focusing, and must be kept clean so the picture will not deteriorate with age.

Increased Range.—Nationwide television broadcasts from a chain of Superfortress-size planes flying in the stratosphere were proposed in 1945 by Westinghouse Electric Corporation as the solution for network television problems. The range of a station, at the frequencies employed, is the distance from the transmitting antenna to the horizon, so that putting the transmitter and antenna in the stratosphere would boost the effective range from about 50 miles for average ground locations to upwards of 200 miles for a stratovision plane circling at 30,000 feet altitude.

Plans call for a specially designed 20-ton plane, built to stay aloft eleven hours and cruise at less than 150 miles per hour. It would carry four television and five frequency-modulation transmitters, plus necessary receivers. Climbing to 30,000 feet, it would receive programs beamed to it from conventional ground studios. For this purpose, directional ultra-short-wave radio transmitters will be used. The plane's transmitters would simply rebroadcast these programs, each on its own wavelength. Thus each of the nine transmitters in the plane would function as a separate station, increasing the economy of the operation.

Eight such planes, flying over New York, Pittsburgh, Chicago, Kansas City, Curtis, Nebr., Leadville, Colo., Salt Lake City, and Los Angeles, could provide a coast-to-coast radio relay system for chain programs. Six more over Durham, N. C., Atlanta, Dallas, Sacramento, and Portland, Oreg., would give coverage for 78 per cent of the nation's population. The cost is claimed to be far less than ground relay systems or coaxial cables.

Television Relay.—On the evening of April 17, 1945 a television program originating in Washington, D.C. was for the first time sent over a chain of four hilltop radio relay stations to television station WPTZ in Wyndmoor, Pa., and from there broadcast to the Philadelphia area. Multiple relaying tests over this chain are being continued to investigate the economy and technical feasibility of using radio links for television networks extending from coast to coast, rather than coaxial cables or the proposed system of airborne stations in the stratosphere.

Patents.—Among television patents granted in 1945 is one to George L. Beers of RCA for a system of television in color that works on the basis of two sets of color filters mounted on rotatable disks. A color wheel at the receiver operates in perfect synchronization with a master wheel at the transmitter, so that at the instant the scene at the transmitter is imaged through a red filter, the corresponding red filter at the receiver tube whirls into position.

The apparatus depends for its success on the motor-driven synchronization device actuated by groups of 500-kilocycle pulses that replace some of the standard synchronizing signals transmitted in the present system. At the receiver the

pulses are fed to a control circuit that causes a clutch to slip until the color wheels are in the desired relation. The apparatus is designed to transmit a three-color image at 40 frames per second.

A patent on a method for producing television programs in large size on motion picture screens has been assigned to Allen B. Du Mont Laboratories, Inc., Passaic, N.J. Incoming electrical signals are converted to a negative image on a cathode-ray tube. A motion picture camera records the picture directly from the cathode-ray tube onto positive stock film. This film is developed rapidly, only about one minute being required for development, and can be projected promptly in standard motion picture theater projection equipment. Such large-screen reproduction of television programs would avoid the necessity for reproduction of the television picture in a tube having sufficiently intense brilliance to allow direct projection. The life of the cathode-ray tube is claimed to be much longer in the film system than for direct projection.

By recording television programs on film it is possible to use standard projection equipment with its high brilliance provided by powerful arc lights, and programs may be edited before showing in a theater. Repeat programs would be available and programs could be scheduled at will.

Political Recognition.—The first definitely assigned position for television cameras in the House of Representatives has been granted to the National Broadcasting Company. It is on the right of the clock in the House gallery, facing the speaker and next to the position occupied by the film companies.

On Trains.—Placing of a television camera at the front end of the locomotive on each crack passenger train is being seriously considered by one large railroad line. Picture signals would be fed over wires, to receivers in lounge and dining cars, so passengers could see the country ahead of the trains on which they are traveling.

In Schoolrooms.—Much speculation exists about possible educational uses for television. The more optimistic boosters believe that every school in large communities can be connected via coaxial cable. Superintendents and principals can sit in their offices and address thousands of children and teachers, watching large television screens in individual classrooms and auditoriums. Famous and highly capable teachers can handle hundreds or even thousands of pupils, boosting the caliber of modern education.

Civic lessons can be dramatized by transmitting meetings of borough or township officials directly to the classes. On sprawling college campuses, lectures, musical programs, scientific demonstrations, and other events can be brought directly into the classrooms, so students will not have to parade from one building to another in an endless waste of time and effort.

Few, if any, television receivers appeared on the market in 1945, due partly to the complexity of the sets and resultant production problems and partly to shortages of component parts. Most of the parts made available by cancellations of military radio and radar contracts went to meet the large pent-up demand for entertainment radio receivers. Designs are ready, transmitters are on the air in the larger cities, and only receiver production problems remain to hold up the rebirth of commercial television.

JOHN MARKUS,
Associate Editor, Electronics.

TENNESSEE. East South Central state, United States; admitted to the Union June 1, 1796. Population (1940): rural, 1,888,635; urban, 1,027,206; total, 2,915,841. Land area, 41,961 square miles, divided into 95 counties. Principal cities, with 1940 populations: Memphis, 292,942; Nashville, the capital, 167,402; Chattanooga, 128,163; Knoxville, 11,580; Johnson City, 25,332; Jackson, 24,332. Governor, Jim Nance McCord; secretary of state, Mrs. Joe C. Carr.

Education.—Public elementary schools (latest report, 1943–44 school year), 5,067; teachers, 14,718; pupils, 496,844; average yearly salary of elementary school teachers, $1,015. Public senior high schools (1943–44), 433; teachers, 4,710; students, 109,576; average yearly salary of senior high school teachers, $1,311. Education in Tennessee is compulsory for all children between the ages of 7 and 16, inclusive. There are 9 junior colleges and 40 institutions of higher learning. Total state appropriation for education (1945–46), $18,887,546; appropriation for education by cities and counties (1944–45), $19,487,345. Commissioner of education, Burgin E. Dossett.

Finances.—The following figures relating to the financial condition of the state government on June 30, 1945, were supplied by W. M. Duncan, director of the budget:

Surpluses in the three revenue funds (general, highway, and sinking funds), June 30, 1945, $29,050,528; general fund appropriations (1944–45), $29,697,829, with unexpended balances of $2,358,835; revenue collections (1944–45), $55,638,228; general fund surplus on June 30, 1945, $9,527,206; balance in the sinking fund on June 30, 1945, $7,525,245; reduction in the state debt in the 1944–45 fiscal year, $5,340,757.

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Production Preliminary 1945
Corn (1,000 bu.)	64,820	59,950	67,151
Oats (1,000 bu.)	1,886	3,611	4,344
Wheat (1,000 bu.)	4,942	6,714	5,688
Barley (1,000 bu.)	1,093	1,862	1,872
Rye (1,000 bu.)	343	390	315
Cotton (1,000 bales)	498	562	485
Hay:			
Alfalfa (1,000 tons)	124	186	338
Clover and timothy (1,000 tons)	184	141	218
Tame (1,000 tons)	1,995	1,601	2,628
Soybeans for beans (1,000 bu.)	302	1,044	1,232
Peanuts (1,000 lbs.)	6,700	8,250	6,200
Sweet potatoes (1,000 bu.)	4,427	4,128	3,300
Tobacco (1,000 lbs.)	98,719	125,645	131,985
Potatoes (1,000 bu.)	3,203	2,464	3,485
Apples (1,000 bu.)	304	351	405
Peaches (1,000 bu.)	1,134	686	1,862
Pears (1,000 bu.)	286	188	493
Grapes (tons)	2,250	2,300	2,200

TENNESSEE VALLEY AUTHORITY (TVA). The end of the Second World War and the resultant reconversion to peacetime activity meant a change in pace but not direction for the TVA. The objective of TVA, the unified development and wise use of the natural wealth of the Tennessee Valley—soils, forests, minerals, and waters calls for the continuation on a peacetime scale of virtually all the programs and activities through which TVA contributed to the war.

The speeded-up construction schedule made necessary by the war brought the major dam building program to virtual completion in 1945, making the Tennessee River the most completely controlled stream in the world for navigation, flood control, and production of power.

Construction of two additional dams, Watauga and South Holston, on tributary streams of the Tennessee, was authorized during the war but completion depends upon the provision of funds by Congress.

Completion of reservoir preparation for Kentucky Dam in 1945 made the project fully effective for flood control, providing over 4,000,000 acre-feet of flood storage capacity and strategically located for lowering flood crests on the lower Ohio and Mississippi rivers. The dam, one of the largest to be built by TVA, creates a lake 185 miles long on the lower reaches of the Tennessee. The dam has been producing power since September 1944.

Initial power operation of Fontana Dam, fourth highest dam in the world, began on Jan. 20, 1945. On Jan. 30, 1945, TVA took over direction of the operation of five major hydroelectric projects of the Aluminum Company of America under an agreement reached in connection with the transfer of the Fontana dam site to TVA, integrating operation of these dams into the TVA system for mutual benefit. No change of ownership was involved.

The TVA multipurpose system now consists of 27 major hydro projects, including those of the Aluminum Company; nine are on the mainstream of the Tennessee and 18 on the tributary streams. The system provides a navigation channel 650 miles long for year-round operation of craft drawing up to nine feet of water. It also provides 13,534,000 acre-feet of useful storage, including 334,000 acre-feet in the Alcoa reservoirs. Of this useful storage, more than 11,000,000 acre-feet is available for flood control on January 1 of each year, the beginning of the flood season. Besides protection in the Tennessee Valley, the system is capable of reducing flood crests on the lower Ohio and Mississippi rivers by 2 to 4 feet, depending on the characteristics of the flood.

By the end of 1945, the installed capacity of the integrated system, with 456,400 kilowatts of fuel plant capacity, was 2,513,102 kilowatts, including 311,120 kilowatts at the Alcoa dams. The system during the fiscal year ended June 30, 1945, produced about 12 billion kw.-hr. (kilowatt-hour) of electricity. TVA power operations resulted in total power operating revenues of $39,383,000 and a net income of $17,982,000. Return on the power investment exceeded 4¾ per cent. During the fiscal year 1945, as for several years past, war purposes consumed three quarters of the power. On June 30, 1945, 137 municipal and co-operative distributors were serving over 600,000 consumers. Average residential consumption was 1,754 kw.-hr. for the 12 months and average cost 1.85 cents per kw.-hr., as compared with national figures of 1,186 kw.-hr. and 3.47 cents.

Up to the end of the war, the TVA chemical plant at Muscle Shoals continued to produce elemental phosphorus for the armed services, calcium carbide for synthetic rubber production, ammonia and ammonium nitrate for military use and for fertilizer, and, so far as possible, after meeting military demands for phosphorus, phosphatic fertilizers for test-demonstration farms numbering nearly 35,000 in 29 states. With the cancellation of military requirements, increased fertilizer production was indicated.

With the end of the war, long-term objectives were re-emphasized. Farm test-demonstrations which, as the Virginia Extension Service reported, "increased production on the whole by one third, though land in cultivation was reduced 10 per cent and 25 per cent less labor was available," were being redirected to meet changing economic conditions through the flexibility provided by diversification and sound soil-building based on proper use of mineral fertilizers. Forestry activities to further encourage modern forestry practices on the 14,000,000 acres of forest land in the valley were continued.

A wide range of research and development activities was being carried on, largely in co-operation with other agencies, in the fields of agricultural engineering, minerals development, fertilizer improvement, food processing, and other fields to aid in the region's agricultural and industrial development. States and local agencies were beginning intensive efforts, after the war, to take advantage of the recreational possibilities provided by the TVA lakes.

The TVA board of directors consists of David E. Lilienthal, chairman; Dr. H. A. Morgan, vice chairman; and James P. Pope.

KENNETH R. KENNEDY,
Information Service Staff, TVA.

TENNIS. See SPORTS IN 1945.

TEXAS. West South Central state, United States; admitted to the Union Dec. 29, 1845. Population (1940): rural, 3,503,435; urban, 2,911,389; total, 6,414,824. Total land area, 263,644 square miles, divided into 254 counties. Chief cities, with 1940 populations: Houston, 384,514; Dallas, 294,734; San Antonio, 253,854; Fort Worth, 177,662; El Paso, 96,810; Austin, the capital, 87,930; Galveston, 60,862; Beaumont, 59,061.

Chief State Officers, 1945.—Governor, Coke R. Stevenson; lieutenant governor, John Lee Smith; secretary of state, Claude Isbell; treasurer, Jesse James; comptroller, George H. Sheppard; attorney general, Grover Sellers.

Judiciary.—Chief justice of the Texas Supreme Court, James P. Alexander; associate justices, John H. Sharp, Gordon Simpson.

Legislature.—The state legislature (Senate, 31 members; House of Represenatives, 150) convenes biennially in odd years on the second Tuesday in January.

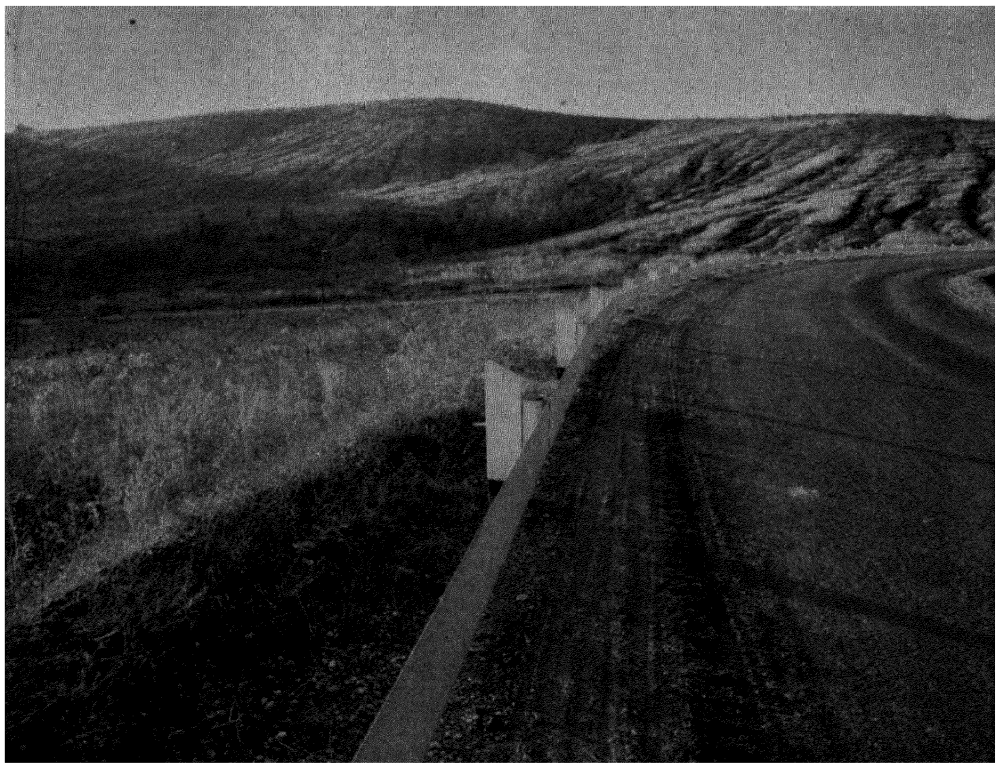
Education.—Public elementary schools (latest report, 1943–44 school year), 7,175; teachers, 28,197; pupils, 953,921; average yearly salary of elementary school teachers, $1,170. Public junior high schools, 157; teachers, 2,789; public senior high schools, 2,433; teachers, 11,927; junior and senior high school students, 289,064; average yearly salary of junior and senior high school teachers, $1,518. Total state appropriation for education (1944), $68,000,000 (approx.); for colleges and universities, $14,000,000; appropriation by cities and counties, $55,000,000 (approx.).

Finances.—The following statement of finances for the fiscal year 1944–45 was supplied by the state treasurer:

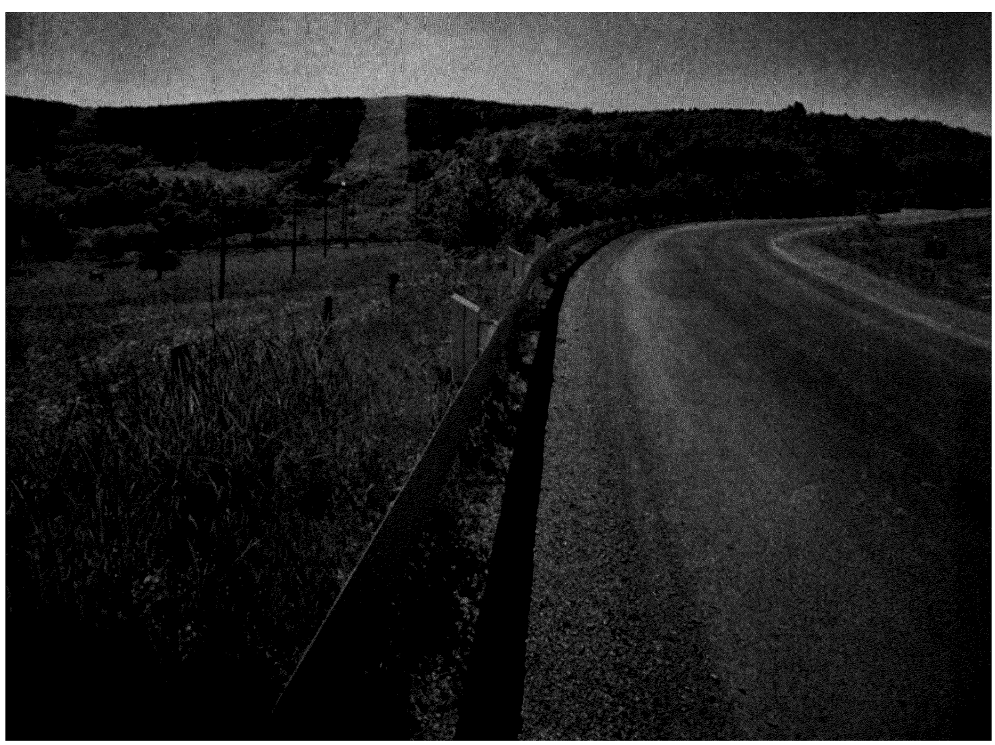
Balance in treasury, beginning of fiscal year 1944–45	$ 48,297,359.51
Receipts, 1944–45	478,430,963.73
Total	$526,728,323.24
Disbursements, 1944–45	454,900,050.00
Balance, beginning of fiscal year 1945–46	$ 71,828,273.24

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agricul-

TENNESSEE VALLEY AUTHORITY



This picture, taken in 1935, shows a hillside in Roane County, Tennessee, once a productive peach orchard, turned into a barren waste through erosion of tilled but unprotected soil.



Courtesy Tennessee Valley Authority

The same hillside ten years later, reclaimed under TVA direction. In 1936, CCC youths constructed rock and log check dams, mulched with brush; planted lespedeza and grass; and set out 90,000 black locust and shortleaf pine seedlings. In another decade, the owner will have a crop of merchantable timber.

ture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	77,427	69,622	68,112
Oats (1,000 bu.)	33,425	38,600	43,546
Wheat (1,000 bu.)	30,337	74,746	37,881
Barley (1,000 bu.)	3,345	10,780	5,075
Rye (1,000 bu.)	118	300	180
Sorghums for grain (1,000 bu.)	38,497	96,724	68,130
Flaxseed (1,000 bu.)	193	272	567
Rice (1,000 bu.)	12,938	19,208	17,200
Cotton (1,000 bales)	3,112	2,646	2,000
Hay:			
Alfalfa (1,000 tons)	260	448	440
Tame (1,000 tons)	1,098	1,526	1,511
Wild (1,000 tons)	212	243	261
Pecans (1,000 lbs.)	24,380	45,000	33,750
Peanuts (1,000 lbs.)	166,053	325,800	398,000
Sweet potatoes (1,000 bu.)	4,318	5,025	4,350
Potatoes (1,000 bu.)	3,840	5,016	5,022
Oranges (1,000 boxes)	2,164	4,400	4,800
Grapefruit (1,000 boxes)	12,043	22,300	24,000
Peaches (1,000 bu.)	1,567	1,517	2,774
Pears (1,000 bu.)	403	502	496
Grapes (tons)	2,300	2,100	2,100

TEXTILES. See CHEMISTRY.

THAILAND. See SIAM.

THANKSGIVING DAY, Legislation Regarding. See LAW, Section 8.

THEATER. The final year of the war found the stage stammering. While there was no lack of interpretative talent during 1945 in the theater, it was given little in the way of dramatic substance with which to work. From an economic standpoint, the business of show producing remained extremely bullish, with the demand for satisfying entertainment far greater than the supply which materialized. There was little trouble in financing new offerings, as many as 43 backers having asked to invest in one exhibit. The same play-hungry public which had been in evidence for several years was on hand to welcome new attractions, but it preferred established successes to meretricious novelties. Artistically, the theater turned up little of which it could be proud.

Until V-J Day one might have ascribed this sorry state of affairs to a want of expert dramatists. But while it is true that many of our best writers were engaged in the war effort directly, or as supervisors of USO shows, during the months of late winter and spring, the start of a new season in the fall found most of them back in their chosen vocation. Several of the most disappointing efforts of the year were the work of veteran and established playwrights. They had little, if anything, to communicate to an audience, whether they concerned themselves with contemporary issues, or sought release from the pressure of immediate events in traditional melodramatic and comic devices.

As already noted, the craftsmen were on hand to infuse vitality into scripts behind footlights. The migration of actors from Hollywood to Broadway, which had already set in, became accelerated in 1945. From Frances Dee, who had never before essayed a stage role, to Spencer Tracy, returning to the theater after 15 years, as the star of Robert E. Sherwood's *The Rugged Path*, screen celebrities were willing and eager to accept assignments. Meanwhile such top directors as George S. Kaufman, Bretaigne Windust, Moss Hart, and Garson Kanin animated a variety of themes, designers outdid themselves in colorful and striking settings, and producers were prodigal in their ministrations. No show that warranted expert treatment failed to receive it.

The year started rather auspiciously. In *The Hasty Heart*, John Patrick tried with some success to reflect the courage and bitterness of a soldier in a convalescent ward. With a dour Scotsman, doomed to death by his wounds, as the protagonist and a hospital behind the Assam-Burma front as locale, the play frequently became a trenchant and moving account of what the war did to so many fighting men. Richard Basehart, as the hero, and John Lund, as a tough Yankee gave particularly fine performances. Despite its success, a lean period ensued at the turn of the year. It was not until Margaret Webster's brilliant revival of Shakespeare's *The Tempest* came to town that stage doings gained new impetus, and it was not until *The Glass Menagerie* by Tennessee Williams, which opened at the end of March, that there was genuine cause for rejoicing in the fact that the theater was still vital and imaginative.

This Eddie Dowling production was selected by the Drama Critics Circle as the best play of the season. A curious blend of fantasy and realism, it described the efforts of a seedy Southern belle in a St. Louis tenement district to marry off her crippled daughter. Dowling not only produced the play, he directed it and appeared in a leading role as the ne'er-do-well son of the family. Laurette Taylor gave an illuminating performance as the dowdy mother and Anthony Ross was excellent as the imagined suitor of the lame girl, played by Julie Haydon. Jo Mielziner's settings fitted the mood of the play perfectly.

The Tempest proved anew that any season is brightened immeasurably by a fine Shakespearean revival. With Arnold Moss as Prospero, that fine Negro actor, Canada Lee, as Caliban, and the celebrated ballerina, Vera Zorina, as Ariel, this production of the great fantasy was memorable. Staged with fluency and interpreted with eloquence, it amply deserved a return engagement on Broadway in November. Other revivals which marked the first months of the year were *You Can't Take It With You* and *The Barretts of Wimpole Street*, both of which proved extremely vigorous in comparison with most of the fresh offerings.

The new plays were particularly disappointing. Clare Kummer's comedy, *Many Happy Returns*, although it had Rex O'Malley and Mary Astor in leading roles, lasted for only three performances. *Good Night Ladies*, based vaguely on the hoary *Ladies Night in a Turkish Bath* was as dull as it was vulgar. The Daphne du Maurier dramatization of her novel, *Rebecca*, already made into a film, provided a ponderous melodramatic entertainment, chiefly distinguished for Florence Reed's sinister portrayal of the housekeeper. *A Goose for the Gander* found Gloria Swanson struggling with a bad script by Harold J. Kennedy in being a femme fatale; Vincent Lawrence's *The Overtons* commented in slipshod fashion on love, marriage, and jealousy, with Walter Greaza and Arlene Francis doing most of the acting; and *Hope For the Best*, by William McCleery, had Franchot Tone as a liberal newspaper columnist in a social comedy that was neither very funny nor pertinent.

In the melodramatic field, authors floundered rather badly. *The Stranger*, by Leslie Reade, underlined a Jack the Ripper yarn with doings in a radical club. Elizabeth McFadden's *Signature*, while employing the novelty of letting the audience in on the identity of the killer, did not let the spectators in on much entertainment. *Lady in Danger*, by Max Afford and Alexander

Kirkland, proved a sorry spy thriller. Far better than the afore-mentioned was *Dark of the Moon*, by Howard Richardson and William Berney, which employed considerable imagination and stagecraft in reconstructing a Smoky Mountains legend about conjure men and witch boys. Richard Hart and Carol Stone had leading roles.

As for the musicals, they fared better than the new dramas. *Up in Central Park* was a colorful pageant of political shenanigans in the 1870's with sentimental tunes by Sigmund Romberg and superior vocalizing by Wilbur Evans and Maureen Cannon. *The Firebrand of Florence*, an adaptation of Edwin Justus Mayer's play by Ira Gershwin and Kurt Weill, proved a colorful farcical operetta. A couple of variety shows had Ethel Waters singing brilliantly in *Blue Holiday* and the one and only Bill Robinson gracing a swing version of *H.M.S. Pinafore* with his dancing. Victor Moore and William Gaxton enlivened George S. Kaufman's satirical interpolation of the same Gilbert and Sullivan operetta known as *Hollywood Pinafore*. And the Theater Guild's production of *Carousel*, a musical adaptation of *Liliom*, with songs by Oscar Hammerstein, 2d and Richard Rodgers, was an instantaneous and solid hit.

The veteran playwrights fumbled as badly as the comparative newcomers during the late winter and spring. Philip Barry's *Foolish Notion* was saved by its star, Tallulah Bankhead. George Kelly's *The Deep Mrs. Sykes* was not saved by its cast, although Jean Dixon contributed a telling bit as the drunken wife of a doctor. Elliot Nugent's *A Place of Our Own* wavered between domestic upheaval and political allegory and Edward Chodorov's *Common Ground*, although timely, proved disjointed, as it followed a USO tour in Italy. Meanwhile Elsa Shelley's *Foxhole in the Parlor*, although endowed with a fine performance by Montgomery Clift as a soldier trying to readjust to civilian life, proved a desultory stage work.

Bad as was the latter part of the 1944–45 season, it was rich in achievement compared with the final months of 1945. Not until mid-November, when the political comedy by Howard Lindsay and Russel Crouse, *State of the Union* opened, did the theater add substantially to the list of worthwhile attractions. With Ruth Hussey, Minor Watson, and Ralph Bellamy matching witty and wise material with first-rate performances, this dramatic commentary on the grooming of a Republican presidential candidate for 1948, had plenty to say and said it in engaging theatrical terms. *Deep Are the Roots*, by James Gow and Arnaud d'Usseau, was a challenging consideration of the postwar racial prejudice, dealing with a Negro war hero returning to his home in the deep South and finding prejudice greater than ever. Barbara Bel Geddes, as the right-thinking daughter of a bigoted aristocrat, gave an illuminating performance, while Gordon Heath was excellent as the ex-soldier.

Acting was again better than playwriting. A dramatization of Emile Zola's *Therese* had Dame May Whitty performing superbly in a creaking triangle melodrama. Spencer Tracy, as already mentioned, gave immense vitality to Robert E. Sherwood's wordy and inexplicit war play *The Rugged Path*, and Edmund Gwenn was magnificent in *You Touched Me!*, another drama about a returned soldier by Tennessee Williams and Donald Windham. *The Rich Full Life* by Viña Delmar had a splendid characterization by Judith Evelyn and *A Sound of Hunting*, Harry Brown's play of the "forgotten war" in Italy was signalized by a lusty portrait on the part of Sam Levene.

The musical shows were not particularly distinguished. *Marinka*, with a score by Emmerich Kalman, was a handsome rendition of the Mayerling legend with Joan Roberts in a leading role. *Polonaise* had Jan Kiepura and Marta Eggerth singing interpolated Chopin melodies in a supposed biography of Kosciusko. *The Red Mill* demonstrated that Victor Herbert was still popular, although it did not prove much of a show artistically, and *Are You With It?*, with music by Harry Revel joined the list of successes as it made prankish fun of the insurance business. *The Day Before Spring*, by Alan Jay Lerner and Frederick Loewe, was more sophisticated and professional than it was gay. John Archer and Tom Helmore contributed most of the humor to an exhibit which was swamped by two inferior Antony Tudor ballets.

Most of the other offerings which wound up 1945 producing were either downright bad or merely passable. *The Ryan Girl*, with June Havoc found Edmund Goulding deserting Hollywood to no avail as author and director. Dan Totheroh's *Live Life Again* was a pretentious verse drama, and Irwin Shaw's *The Assassin* became muddled in political philosophy as it described the killing of Admiral Darlan. *Beggars Are Coming to Town*, by Theodore Reeves tried unsuccessfully to compare present-day night life with that of the prohibition era and *The Next Half Hour* proved an unkempt fantasy, although it was written by the same Mary Chase who blessed 1944 with *Harvey*, and had Fay Bainter in the chief part.

The exceptions may be mentioned briefly. *The Mermaids Singing* by John Van Druten was a fragile but entertaining comedy of manners. *Strange Fruit*, Lillian Smith's adaptation of her novel about a white man's love for a Negro girl, was done with great force. George Abbott's musical *Billion Dollar Baby* was welcome in a lean year and so were the revivals of *Hamlet* and *Pygmalion*. The former found Maurice Evans in the title role. The latter had Gertrude Lawrence and Raymond Massey as principals. See also DANCE; MOTION PICTURES.

HOWARD BARNES,
Dramatic Critic, New York Herald Tribune.

THOMPSON, Oscar. See MUSIC—*Necrology*.

TIBET. A dependency of China, extending from the Pamir region eastward to the Chinese frontier and lying between the Kunlun and Himalaya mountains. The area is estimated at 463,200 square miles, with a population variously estimated between 1,500,000 and 6,000,000. Lhasa, the capital, has about 50,000 inhabitants. Lamaism, a form of Buddhism, is the religion of most of the people, and the civil and religious head of the government is the Dalai Lama.

After the death of the old Dalai Lama in 1933, Tibet was under a regent until September 1939, when a five-year-old Chinese boy was accepted by a secret council at Lhasa as the new Dalai Lama. He was installed as the 14th Dalai Lama on Feb. 22, 1940. Upon reaching his majority, he will share ruling power with the Tashi Lama, a junior pontiff and spiritual dignitary. The last Tashi Lama was exiled to China in 1924 and died there in 1937. According to reports from Chungking, China, a 7-year-old boy was installed as the tenth Panchen Lama, spiritual leader of Tibet on Feb. 8, 1944, in ceremonies at Hsunhwa, Chinghai Province.

Agriculture is carried on in some places, cereals and vegetables being grown, but Tibet is mainly a pastoral country, the domestic animals being sheep, yak, buffaloes, camels, and pigs. Wool spinning and knitting are carried on. Gold, borax, and salt are mined. There is a large trade with China and India, that to the latter being transported by pack animals over lofty passes of the Himalayas between 14,000 and 18,000 feet high. There is a telegraph line, 144 miles long, connecting Lhasa with Gyangtse.

TIMOR, Portuguese. See PORTUGUESE COLONIAL EMPIRE.

TIMOR ARCHIPELAGO. See NETHERLANDS INDIES.

TITANIUM. See METALLURGICAL ADVANCES.

TOBACCO. The 1945 tobacco crop of the United States was estimated by the Department of Agriculture on October 1 at 2,036,831,000 pounds, as compared with the 1944 crop of 1,950,213,000 pounds and the 1934–43 average crop of 1,392,390,000 pounds. North Carolina held first place among producing states with a 1945 crop of 843,925,000 pounds. Kentucky was second with 445,379,000 pounds; and Virginia was third with 150,210,000 pounds.

One of the most interesting announcements made during the year in connection with tobacco was made by Duke University on July 4 in a statement asserting that high quality Turkish tobacco, "as good if not better than overseas tobacco," has been grown on 55 small farms in North Carolina, Virginia and South Carolina, and at agricultural experiment stations in the three states.

In normal years from 50 to 75 million pounds of Turkish tobacco are imported annually by cigarette manufacturers for blending with domestic tobaccos. Whether American production of the diminutive aromatic leaf can be proved "economically feasible" remains to be seen. If this can be done, the Duke authorities assert that development of the industry in this country may prove a boon to thousands of small, marginal land farmers in the Piedmont and mountain areas of the South, "and mark one of the most important developments in tobacco growing in a century."

The experiments made in the South have been carried out on plots of one to two acres, and have been going on for five years, under the general direction of Dr. Paul Gross, chairman of the department of chemistry, Duke University. Laboratory and field research was supervised by Dr. F. R. Darkis, with Dr. F. A. Wolf in charge of brooding and genetic experiments.

It was stated in the announcement that planting costs are high, and that a large amount of hand labor is involved in the growth and curing of the Turkish tobacco. However, compensation comes from the fact that the growing crop requires little weeding or cultivation. Again Turkish tobacco thrives on comparatively poor soil, and responds better to organic types of fertilizer. The requirement for animal manures, it is asserted, would encourage the keeping of livestock, and result in a better balanced agriculture.

TOBAGO. See TRINIDAD.

TOGO, Shigenori, former Japanese Cabinet member: b. Kagoshima, Japan, 1882. Togo was foreign minister in Premier Tojo's Cabinet at the time of the Pearl Harbor attack in December 1941, and later held the same post in Premier Kantaro Suzuki's Cabinet which resigned when Japan capitulated. His was one of the names included on General MacArthur's list of Japanese wanted for questioning on responsibility for the Pacific war. In an Associated Press interview at his home in Tokyo on Sept. 16, 1945, Togo told newsmen he had accepted the Foreign Ministry in October 1941 only after Gen. Hideki Tojo had promised him he would do his part to conclude pre-Pearl Harbor negotiations with the United States on "reasonable terms." He added further that in the Japanese Cabinet upset of August 8, 1945, he had stood firmly for ending the Pacific war, and had finally won out. In 1933, Togo was chief of the European and American bureau of the Japanese foreign office, and in 1934, of the Asiatic bureau. He was ambassador to Germany in 1937, and to the USSR, 1939. He played a major part in concluding with Russia a settlement of the Russo-Manchurian border incidents.

TOGO. Two mandates of the League of Nations lying in West Africa between Dahomey and the Gold Coast, administered respectively as French Togo and British Togoland (see below). The combined area is 34,934 square miles, and the population numbers 1,172,000. The former German colony of Togo was captured by Franco-British forces during the First World War; an agreement reached in 1919 which divided the coastline between the two countries was amended the next year, all the seaboard then being transferred to France, and Britain obtaining a larger share of the hinterland. When the mandates were approved by the League of Nations in 1922, citizens of the United States were accorded the same status in Togo as nationals of members of the League.

French Togo.—This mandate adjoins Dahomey on the east, has an area of 21,893 square miles and a population of 781,000. The capital and chief port is Lomé, population (1938) 14,380; a second port is Anecho, 27 miles west of the capital. Native foodstuffs comprise yams, plantains, Indian corn, cassava, and peanuts. There are large numbers of livestock, and native industries include weaving, straw-plaiting, pottery, and smithwork. The principal exports are oil palm products, cocoa, rubber, cotton, and copra. Three railroads with a total length of 242 miles radiate from Lomé, respectively to Blitta (143 miles), Palime (72 miles), and Anecho (27 miles).

British Togoland.—The mandate adjoins the Gold Coast on the west, has an area of 13,041 square miles and a population of 391,473. For administrative and statistical purposes Togoland is attached to the Gold Coast, the southern district as part of the Gold Coast colony, and the northern area with the Northern Territories; Ho is the headquarters of the local administration. Agricultural and pastoral activities are akin to those of French Togo. As a result of the fall in cocoa prices in 1944, the cultivation of rice has been encouraged. There are no railroads; highways suitable for motor traffic connect the mandate with the Gold Coast. Telecommunications were extended during the Second World War, linking Ho, Jasikan, and Kpandu with Accra. See BRITISH WEST AFRICA; FRENCH WEST AFRICA.

TOJO, Hideki (Eiki), Japanese army officer and politician: b. Tokyo, Japan, December 1885. Premier of Japan at the time of the Pearl Harbor attack, and until the loss of Saipan to the Americans forced his resignation in July 1944, General Tojo was taken into custody on Sept. 11,

1945, after an unsuccessful suicide attempt, made when American counter-intelligence officers went to his Tokyo home on orders from General MacArthur to arrest him for trial as a war criminal. Recovered from his self-inflicted pistol wound, Tojo was transferred from Yokohama to Omori prison camp on October 7. Tojo is the son of Gen. Eikyo Tojo, strategist of the Russo-Japanese War, 1904–05. He graduated from army officers school in 1915, and four years later, went to Germany to study military science. By 1937, he had advanced through the grades to the rank of lieutenant general and the post of chief of staff of the Japanese Army in China. From May–December 1938, he was vice minister of war, then transferred to the position of military aviation director. He returned to the war ministry as its chief in July 1940, and in October 1941, succeeded Prime Minister Konoye as head of the Japanese government.

TOLBUKHIN, Fedor Ivanovich, Soviet Army officer: b. June 16, 1894. Like so many Red Army commanders, skilful, 51-year-old Marshal Tolbukhin was born of sturdy Russian peasant stock; saw active combat service in the First World War; and later fought in the civil war. In 1915, he completed officers training, and by 1919, held a command post on the Petrograd front, and took part in that city's defense. In the years of peace, Tolbukhin remained with the Red Army; studied and taught military science; and passed through the operational faculty of Frunze Military Academy. At the time of the Nazi invasion, he was a military district chief of staff. He commanded an army for the defense of Stalingrad in 1942, and in November of that year, his troops swung to the offensive with other Soviet formations for the decisive blow against the Germans' Stalingrad grouping. Between November 19 and 25, they drove through enemy lines; forced an opening for tanks and mechanized units; and joined with troops of the Don front to complete the encirclement of von Paulus' Sixth German Army. For his share in the Stalingrad victory, Tolbukhin was promoted lieutenant general and awarded the Order of Suvorov, First Class. As a colonel general in the spring of 1943, he was sent to the southern front; August 1943 saw his brilliant break-through in the Mius sector; and October, his assault on German fortifications thrown around the approaches to the Crimea. In early May 1944, Tolbukhin joined his Fourth Ukrainian Army with General Yeremenko's Special Maritime forces for the siege and capture of Sevastopol, German-held Black Sea naval base in the Crimea. His troops later cleared the Nazis out of southern Russia, and with Malinovsky's army, overran Rumania and Bulgaria, forcing those two countries out of the war. On April 13, 1945, his Third Ukrainian Army, with Malinovsky's Second Ukrainian, completed the occupation of Vienna, second largest city of Hitler's "Greater Germany." Tolbukhin became a Marshal of the Soviet Union in September 1944.

TOLSTOY, Aleksei Nikolaevich, Russian novelist and dramatist: b. 1882?; d. Moscow, Russia, reported on Feb. 23, 1945. A descendant of the poet of the same name, and probably distantly related to Count Leo Tolstoy, the 19th century writer, Count Aleksei Tolstoy has been called by many critics Soviet Russia's greatest contemporary novelist.

Tolstoy made his literary debut in 1908, and by 1919, his *Road to Calvary,* a picture of Russia during war and revolution, was acclaimed as one of the best modern books in the Russian language. He fled from the Bolsheviks to Paris in 1919. Three years later he dropped his title, offered his apologies to the Soviet government, and was admitted to Russia as a "repenting émigré." The government gave him wide freedom, and his books were influential in winning a greater appreciation of Russian history and traditions. Abandoning his nonpolitical role in 1938, he was named Soviet minister in Sofia, Bulgaria, and served for a time at this post. He was made a member of the Supreme Soviet, and of the Soviet Commission on Nazi Crimes in Russia. In 1939, he was one of the 30 Soviet personages on whom the honored title of "Academician" was bestowed. He had also received the Order of Lenin.

Besides *Road to Calvary,* other works by Tolstoy that have appeared in English translation are *Peter the Great* (1932); *Darkness and Dawn* (1935); *Death Box* (1936); *Bread* (1938); and *My Country* (1944). He also wrote *Nikita's Childhood* (1922); *The Way Through Hell* (1922); *Aelita* (1923); *Seven Days...* (1925); *The Year 1918* (1928); *The Flames of Paris,* which received the Stalin premium in 1942; and the trilogy, *Passage Through Torment,* winner of the Stalin premium in 1943.

TOLSTOY, Count Leo Lvovich, Russian novelist and sculptor: b. 1869; d. Hälsingborg, Sweden, Oct. 18, 1945. Third son of the famous Russian novelist, Count Tolstoy studied sculpture in Paris under Rodin for two years. During the First World War, he founded in Russia a newspaper *Vestocha,* which published editorials that the Bolsheviks branded as anti-revolutionary. His paper was suppressed and his friends and employees arrested or driven to flight. He then lived for many years in France and went to Sweden several years before his death. Count Tolstoy visited the United States three times: in 1911, to study the educational system and sociological conditions; in 1927, to give lectures on his father's life and work; and in 1928, to take part in the celebrations of the centenary of his father's birth. He was the author of *For the Children; Years of Famine; Prelude of Chopin* (revealing the blessings of marriage as a reply to his father's *Kreutzer Sonata*); and *The Truth About my Father* (1924).

TONGA. See WESTERN PACIFIC ISLANDS, BRITISH.

TONKIN. See FRENCH INDO-CHINA.

TORPEDO, Wakeless. Among the best-kept secrets of the Second World War was the use by the United States Navy of an electrically propelled torpedo that sped, silent and untraceable, through enemy waters. With this weapon, prior to V-J Day, 372 Japanese ships aggregating 1,858,200 tons, and ranging in size all the way from a 42,500-ton battleship down to cargo-carrying merchant ships and naval auxiliaries of 500 tons were sent to the bottom. Developed and built for the navy by the Westinghouse Electric Corporation, the 10,000th electric torpedo came off the lines the day the Japanese surrendered. Need for something in addition to the compressed-air-driven torpedoes used for many years was realized early in the war by the navy. British and American ships were being sunk by Nazi torpedoes that could not be seen—torpedoes that were electrically driven. Less than four months after Pearl Harbor, Westinghouse was awarded the contract for developing and manufacturing the wakeless torpedo, and five completed ones

were delivered to the navy just 109 days after work started. As late as November 1944 production was speeded up to 400 torpedoes a month.

TRACK AND FIELD. See SPORTS IN 1945.

TRADE. See EXPORT-IMPORT BANK OF WASHINGTON; FEDERAL TRADE COMMISSION; FINANCIAL AND ECONOMIC REVIEW; TARIFF COMMISSION, UNITED STATES; also sections on Foreign Trade in articles on separate countries.

TRAIN, Arthur C., American novelist, playwright, and lawyer: b. Boston, Mass., Sept. 6, 1875; d. New York City, Dec. 22, 1945. Mr. Train was the creator of Ephraim Tutt, a fictional lawyer who invented "legal strategems for rescuing the technically guilty but morally innocent from the toils of the law," and whose corporeal existence was taken for granted by countless numbers of readers. Taking his preparatory course at St. Paul's School, Mr. Train received a B.A. degree from Harvard University in 1896, and an LL.B. degree from Harvard Law School in 1899. He spent a few months in a Boston law office and was admitted to the Suffolk (Mass.) bar. He came to New York at the turn of the century, worked briefly for the Legal Aid Society and then for the firm of Robinson, Biddle, and Ward. He served as assistant district attorney of New York County from 1901–08 and again from 1914–15. In 1910 he was named a special deputy attorney general to investigate political offenses in Queens County. His most celebrated case was the prosecution in 1914 of Henry Siegel, operator of a chain of drygoods stores, who was accused of mulcting thousands in a savings account scheme. After spending $50,000 preparing the case, Mr. Train won a conviction. Later he took up private practice, but in 1923 retired to devote himself entirely to writing.

Mr. Train's first story to reach print was *The Maximilian Diamond,* which *Leslie's Magazine,* later the *American,* published in July 1904. The next year his first book, *McAllister and His Double,* was published. In May 1944 Mr. Train and his publishers were sued in the Supreme Court by an irate attorney who charged that Mr. Tutt's failure to materialize in the flesh constituted fraud. Mr. Train rested his case on Defoe's *Robinson Crusoe* and Swift's *Gulliver's Travels,* which purported to be the actual experiences of the authors. Mr. Train had been president of the National Institute of Arts and Letters since 1941.

TRANSJORDAN. An Arab emirate in western Asia, east of Palestine and with it constituting a mandate of the League of Nations entrusted to Great Britain. The area is approximately 34,740 square miles, and the population is estimated to number 400,000, of whom 330,000 are Arab Moslems; 50,000 are Arab Christians, and the remaining 20,000 are Circassians or other Caucasian races. Amman (pop. 35,000) is the capital, and Aqaba a port in the Gulf of Aqaba, at the head of the Red Sea. Although legally and technically mandated territory, Transjordan's independence under British protection was recognized by the League of Nations in 1928; the high commissioner for Palestine also holds a like office for Transjordan, his representative at Amman being termed British resident (A. S. Kirkbride appointed Feb. 16, 1939). Transjordan was expressly excluded from the undertaking relative to Palestine becoming a national home for the Jews. In 1944 the British government announced its readiness to negotiate a treaty after the war more favorable to Transjordan than the status agreed upon in 1928. The emir (Abdullah ibn Husein) is the second son of the late King Husein of Hejaz and granduncle of King Faisal II of Iraq. He administers the country with the aid of a Council of Ministers and a Legislative Council of 22 members (6 officials and 16 elected members). The country is not financially self-supporting. In 1940–41 the revenue amounted to £P483,565, which included a grant-in-aid from the British Treasury of £P95,110; expenditure was £P510,573. The public debt at Dec. 31, 1939, was £P155,107. Wheat, barley, and tobacco are cultivated in fertile areas near the River Jordan; much of the country, however, is desert, where pastoral pursuits are the chief occupations. Rich phosphate deposits remain almost unexploited, and other known minerals include iron, copper, and manganese. Prospecting has yielded indications of petroleum. The Transjordan Frontier Force, under British officers, is responsible for defense, and the Royal Air Force has stations in the country. The Hejaz Railway runs through Transjordan, north to south, from Damascus as far as Ma'an; from that point, the line was allowed to fall into disuse after the First World War. A road across the country from east to west links Haifa, Palestine, with Baghdad, Iraq, replacing the trail formerly followed by motorbus services between those two cities. The year 1945 saw completion of a north-south highway from Damascus, Syria, to Aqaba, the port at the southern end of Transjordan. The British government was also expanding the harbor facilities at Aqaba and providing a deep-water anchorage available for a large number of vessels.

The emir has displayed considerable alarm at the possible effect upon Transjordan of increased Jewish settlement in Palestine; it was evidenced by his cabled protest to President Franklin D. Roosevelt in 1944 when resolutions favoring the Jewish case came before the United States Congress. This was, perhaps, the principal motive prompting Emir Abdullah to help constitute the Arab League (q.v.) and to sign its charter on March 22, 1945. Although, in Arab opinion, Transjordan was qualified for full membership in that body, its anomalous status of quasi-independence under British tutelage debarred the country from representation at the United Nations Conference on International Organization at San Francisco.

TRANSVAAL. See SOUTH AFRICA, UNION OF.

TRANSYLVANIA. A district of southeastern Europe, a part of the kingdom of Hungary from 1868, until annexed by Rumania in December 1918. Promised to Rumania by the Allies in 1916, its final frontiers were not established until 1920 by the Treaty of Trianon. As thus constituted, the province of Transylvania embraced an area of 22,312 square miles; its population was 3,414,492, according to the latest census. Hungary remained unreconciled to the award of Transylvania to Rumania, and in 1940 the Axis intervened in the dispute and arbitrarily returned to Hungary the northern portion of Transylvania, an area of 16,642 square miles with a population of about 2,573,000. Terms of the Allied armistice to Rumania announced from Moscow Sept. 13, 1944, included the return of northern Transylvania to Rumania; and on March 10, 1945, the government of the Union of Soviet Socialist Republics accordingly gave official permission to the

Peter Groza government to assume control and administration of the area. See also RUMANIA and HUNGARY.

TREASURY OF THE UNITED STATES. Government receipts in the fiscal year 1944–45 (exclusive of $1,283,000,000 of social security employment taxes set aside for account of the Federal Old-age and Survivors Insurance Trust Fund) amounted to $46,457,000,000, an increase of $2,308,000,000 over the net receipts for the fiscal year 1943–44, the previous record year.

Total budgetary expenditures amounted to $100,405,000,000, an increase of $6,661,000,000 over the previous fiscal year. Expenditures for war activities amounted to $90,029,000,000. In addition, the Reconstruction Finance Corporation and its subsidiaries had war expenditures amounting to $472,000,000. These items, together with interest on the public debt, tax refunds and veterans' expenditures accounted for about 98 per cent of total expenditures.

The net deficit for the year was $53,948,000,000, as compared with $49,595,000,000 for the preceding year, an increase of $4,353,000,000.

The table in next column shows the budgetary receipts and expenditures for the fiscal years 1944 and 1945.

Receipts.—Total receipts of the federal government in the fiscal year 1945 amounted to $47,740,000,000, as compared with $45,408,000,000 in 1944, an increase of $2,331,000,000. Income taxes increased $518,000,000. Income taxes withheld by employers under the Current Tax Payment Act of 1943 increased $1,896,000,000, while other income taxes decreased $1,378,000,000. All other classes of receipts, except those from customs, increased over the preceding fiscal year. Social security taxes and taxes upon carriers and their employees increased over $40,000,000; miscellaneous internal revenue increased over $1,658,000,000, and miscellaneous receipts increased $189,000,000.

Customs collections of $355,000,000 were $76,000,000 less than the $431,000,000 received in the fiscal year 1944, which were the largest receipts since 1937.

Included among miscellaneous receipts were more than $2,000,000,000 on account of renegotiation of war contracts; about $275,000,000 from the sale of surplus property, and $188,000,000 from surplus postal revenues. The surplus postal revenues paid into the Treasury during the fiscal year 1945 exceeded the total surplus receipts from this source since the establishment of the government.

The total receipts for the fiscal year were only $717,000,000, or 1½ per cent, more than the budget estimate of Jan. 3, 1945.

Expenditures.—The total budgetary expenditures of $100,405,000,000 exceeded the budget estimate of Jan. 3, 1945, by $1,492,000,000, or about 1½ per cent, due primarily to continuing high expenditures for war activities, which were $2,029,000,000 above the budget estimate.

Budgetary expenditures classified as "war activities" amounted to $90,029,000,000 for the fiscal year, an increase of $2,990,000,000 compared with 1944. Increased expenditures in some of the larger war agencies were as follows: War Department, $1,098,000,000; Navy Department, $3,510,000,000; Treasury Department war expenditures, chiefly purchases for lend-lease export,

BUDGETARY RECEIPTS AND EXPENDITURES, FISCAL YEARS 1944 AND 1945

(In millions of dollars)

	1944	1945
Receipts:		
Internal revenue:		
Income tax:		
Withheld by employers (Current Tax Payment Act of 1943)	8,393	10,289
Other	26,262	24,884
Miscellaneous internal revenue	5,291	6,949
Social Security taxes	1,472	1,494
Taxes upon carriers and their employers	267	285
Railroad unemployment insurance contributions	12	13
Customs	431	355
Miscellaneous receipts	3,280	3,470
Total receipts	45,408	47,740
Deduct net appropriations to Federal Old-age and Survivors Insurance Trust Fund	1,260	1,283
Net receipts	44,149	46,457
Expenditures:		
I. General:		
Departmental (not otherwise classified)	793	892
Agriculture Department:		
War Food Administration:		
Commodity Credit Corporation—Restoration of capital impairment	...	257
Other	836	484
Other	38	[a]36
Federal Security Agency:		
Social Security Board	488	455
Other	88	94
Federal Works Agency	140	100
Interior Department—Reclamation projects	54	50
National Housing Agency	15	12
Panama Canal	12	9
Post Office Department (deficiency)	[a]29	1
Railroad Retirement Board	6	6
River and harbor work and flood control	177	142
Tennessee Valley Authority	65	20
Treasury Department:		
Interest on the public debt	2,609	3,617
Refunds of taxes and duties:		
Excess Profits Tax Refund Bonds	134	894
Other	133	821
Veterans' Administration	629	934
Subtotal	6,188	8,751
II. War activities:		
War Department	49,302	50,399
Navy Department	26,538	30,047
Agriculture Department	2,143	1,198
Federal Security Agency	133	122
Federal Works Agency	228	185
National Housing Agency	539	70
Treasury Department	1,432	1,462
United States Maritime Commission	3,812	3,227
War Shipping Administration	1,922	2,042
Aid to China	...	140
Payments for United Nations Relief and Rehabilitation Administration	...	114
Other	991	1,022
Subtotal	87,039	90,029
III. Revolving funds (net):		
Farm Credit Administration	[a]38	[a]21
Public Works Administration	[a]1	*
Subtotal	[a]39	[a]21
IV. Transfers to trust accounts, etc.:		
Adjusted Service Certificate Fund	...	9
Federal contributions to District of Columbia (United States share)	6	6
Government employees' retirement funds (United States share)	177	197
National service life insurance fund	101	1,117
Office of Distribution (surplus commodity stamps)	[a]3	[a]*
Railroad retirement account	263	309
Railroad unemployment insurance administration fund transfers to unemployment trust fund (Act Oct. 10, 1940)	12	9
Subtotal	556	1,646
Total expenditures (excluding public debt retirements)	93,744	100,405
Net deficit	49,595	53,948

Note: Figures are rounded to the nearest million and will not necessarily add to the total shown.

[a] Excess of credits, deduct.

* Less than $500,000.

$30,000,000; War Shipping Administration, $120,000,000; other miscellaneous items, $32,000,000. Aid to China and payments for United Nations Relief and Rehabilitation Administration aggregated $254,000,000, while there were no expenditures for these items in the fiscal year 1944. Decreases in war activities expenditures in 1945 compared with the previous fiscal year were: Department of Agriculture, mainly lend-lease food program, $945,000,000; United States Maritime Commission, $585,000,000, and an aggregate of $522,000,000 under the Federal Security Agency, Federal Works Agency, and the National Housing Agency.

General expenditures, excluding revolving funds and transfers to trust accounts, amounted to $8,751,000,000, an increase of $2,563,000,000, as compared with 1944. However, this increase was more than offset by increases in certain items classified as general expenditures which reflect the impact of war activities, namely, interest on the public debt which increased $1,008,000,000, refunds of taxes and duties which increased $1,448,000,000; and veterans' expenditures which increased $305,000,000; and by a payment of $257,000,000 to restore the capital impairment of the Commodity Credit Corporation applicable to the fiscal years 1943 and 1944, but not appropriated by the Congress until April 25, 1945.

Expenditures representing amounts transferred to trust accounts, etc., increased $1,090,000,000, as compared with the previous year. This increase is accounted for as follows: a $9,000,000 payment to the Adjusted Service Certificate Fund; transfers to government employees, retirement funds of $19,000,000 more than the preceding year; transfers to the National Service Life Insurance Fund were greater by $1,015,000,000 than in 1944; and the amount transferred to the railroad retirement account exceeded the previous year by $46,000,000.

The Public Debt.—The gross public debt of the United States on June 30, 1945, amounted to $258,682,000,000 as compared with $201,003,000,000 on June 30, 1944, an increase of $57,679,000,000. The computed rate of interest on the total interest-bearing public debt was 1.936 per cent on June 30, 1945, as compared with 1.929 per cent on June 30, 1944.

Statutory Debt Limitation.—Under the Public Debt Act of 1945, approved April 3, 1945, the limitation on the general borrowing power under the Second Liberty Bond Act, as amended, was increased from $260,000,000,000, applicable to public debt obligations issued under that act, to $300,000,000,000, applicable to public debt obligations and publicly held obligations guaranteed as to principal and interest by the United States. As of June 30, 1945, the unused borrowing authorization under the limitation was $31,329,000,000.

The Guaranteed Debt.—The contingent liabilities of the government on account of outstanding market issues of obligations of governmental corporations and credit agencies, guaranteed as to principal and interest, decreased from $1,623,000,000 on June 30, 1944, to $433,000,000 on June 30, 1945, a decrease of $1,190,000,000. This decrease was largely due to the continuation of the policy announced in October 1941, under which the funds needed by governmental corporations are provided by the Treasury in lieu of having such corporations sell their obligations in the market. During the year the securities of governmental corporations and credit agencies held directly by the Treasury increased from $10,717,000,000 to $12,169,000,000, an increase of $1,452,000,000.

A statement of guaranteed obligations outstanding as of June 30, 1944, and June 30, 1945, follows:

OUTSTANDING OBLIGATIONS GUARANTEED AS TO PRINCIPAL AND INTEREST BY THE UNITED STATES AS OF JUNE 30, 1944, AND JUNE 30, 1945
(In millions of dollars)

	1944	1945
Public Issues:		
Commodity Credit Corporation	561	375
Federal Farm Mortgage Corporation	43	8
Federal Housing Administration	24	34
Federal Public Housing Authority	...	...
Home Owners' Loan Corporation	819	16
Reconstruction Finance Corporation	176	...
Subtotal	1,623	433
Issues held by the Treasury and reflected in the public debt:		
Commodity Credit Corporation	900	1,591
Federal Farm Mortgage Corporation	366	108
Federal Public Housing Authority	398	383
Home Owners' Loan Corporation	580	1,010
Reconstruction Finance Corporation	8,416	9,020
Tennessee Valley Authority	57	57
Subtotal	10,717	12,169
Grand Total	12,340	12,602

Note: Authority for entire statement, U.S. Treasury Department.

TRENGGANU, trĕng-gä'nōō. See BRITISH MALAYA.

TRINIDAD. The most southerly island of the West Indies, together with Tobago, 21 miles to the northeast, constituting a British colony. The total area of the colony is 1,980 square miles (Trinidad, 1,864 square miles; Tobago, 116 square miles), and the estimated population as of Dec. 31, 1944, was 546,088 (Trinidad, 512,545; Tobago, 33,543). The large majority of the inhabitants are West Indians, of African descent. The white population comprises English, French, Spanish, and Portuguese; and there are also a large number of East Indians (from British India) and several thousand Chinese. Port of Spain (pop., 1944, 105,195) is the capital and chief port; other towns of Trinidad are San Fernando (18,989), Arima (6,720), and Princes Town (6,651). Scarborough (1,635) is the chief town and port of Tobago; and other towns are Roxborough (1,805) and Plymouth (991).

American Bases.—In 1940 the United States secured bases in Trinidad (a total of 25,000 acres in all) for naval and air-defense purposes, these being leased for a period of 99 years. Considerable construction work was done on the bases during the war.

Government.—The governor (Sir Bede Edmund Clifford appointed March 25, 1942) is assisted by an Executive Council of 8 members (3 officials ex officio and 5 other persons nominated) and by a Legislative Council of 18 members (3 official and 15 unofficial, 6 of the latter being nominated and 9 elected). In 1945 the legislature unanimously endorsed the proposal of the secretary of state for the colonies that the colonies of the British West Indies federate. Revenue of the colony in 1944 aggregated $29,158,819 and expenditure was $31,246,441, resulting in a deficit of $2,087,622. Included in items of expenditure was an amount of $3,245,649 relating to schemes of development. The deficit of $2,087,622, together with depreciation in the value of securities aggregating $29,000, reduced the general revenue balance to $6,740,166. The financial position of the col-

ony was satisfactory. The draft budget for 1945 provided for estimated revenue of $28,195,080 and an expenditure of $33,206,954; expenditure included $5,099,350 for development schemes.

Education.—There were at the close of 1944, 291 primary and intermediate schools in the colony (257 in Trinidad, and 34 in Tobago), 46 of them being conducted by the government and 245 by missionary bodies in receipt of government aid. Queen's Royal College and its affiliated institutions provide for the higher education of boys and girls in Trinidad; and in Tobago is the Bishop's High School. In 1945 it was proposed that the government and denominational institutions for teacher training be replaced by a central Training Institute which would also serve the Leeward and the Windward Islands. The Imperial College of Tropical Agriculture is located at Saint Augustine, Trinidad.

Agriculture and Industry.—Sugar and cacao are the principal agricultural products. The sugar crop in 1944–45 amounted to 76,347 tons (74,344 tons in 1943–44). The British government undertook to meet the cost (up to £20 per acre) of a subsidy on land newly planted in canes, other than Uba cane, during 1945. Sugar quotas for the period Feb. 1, 1945-Jan. 31, 1946, provided exports of 138,000 tons and a local consumption of 20,000 tons. Cacao production in 1944 was valued at $1,500,000, an increase of $440,000 over 1943. During the Second World War the acreage under food crops increased from 15,000 acres to 60,000 acres. The rice crop for 1945 was the greatest in the colony's history. Coconuts, limes, and grapefruit are also grown on a commercial scale. The value of all crops produced in 1944 was $9,469,000. Timber plantations, principally of teakwood, had an area of 5,546 acres in 1944. Output of rubber was at its maximum during the war because of the introduction of new methods of tapping the trees; 40,000 acres out of 100,000 acres of rubber are now tappable. In 1944, 18,000,000 board feet of lumber was cut; forest products, used for furniture making, the safety-match industry, and other purposes had a value of $4,000,000. The Colonial Microbiological Research Institute established in Trinidad in 1945, financed by funds from the British Treasury under the terms of the Colonial Welfare and Development Act, 1940, is under the general supervision of the Colonial Products Research Council. Lime oil, bitters, and rum are manufactured. A phenomenon of Trinidad is an asphalt lake, 109 acres in extent, near the town of La Brea, from which 71,877 tons of natural asphalt were taken in 1944. Trinidad ranks sixth in the Western Hemisphere in the exploitation and manufacture of petroleum products. The colony enjoys more than half of the aggregate trade of the British West Indies. Total exports in 1944 had a value of $54,106,328; and imports amounted to $68,988,522.

Communications.—The government-owned railroad has a length of 123 miles; it links Port of Spain with Sangre Grande, on the east coast, and with Siparia, on the southwest. There are 1,849 miles of highways, of which 1,080 miles are main roads. A scenic road cut through sheer cliff was constructed by the United States Navy and handed over to the colonial government in 1944; it gives access to the bathing beach at Maracas Bay, opened up to replace other bathing beaches now included in the American bases. Trinidad is well served with steamship and air transport lines; an air service links Trinidad with Jamaica, by way of St. Kitts, Leeward Islands, and the island is also used by air services between the United States and Africa. A radio telephone service to the United States was established in 1944, and to Barbados in 1945.

TRIPOLI or **TRIPOLITANIA.** See LIBYA.

TRISTAN DA CUNHA, trĭs-tän' dä kōōn'yä. See SAINT HELENA.

TROBRIAND. See PAPUA, TERRITORY OF.

TROPICAL DISEASES. Many of the leading authorities in the field of tropical medicine now agree that there is no great danger of the spread of tropical diseases in the United States through infections brought by returning service men and women. Tropical diseases are largely insect borne. In the tropics these pests are likely to be active every month in the year, whereas in the United States during the cold months they are largely inactive. Our better laundry and sanitary facilities to a great extent prevent the spread of infection. The well organized methods invoked by the armed forces for the protection of their personnel stationed in the tropics and the many epoch-making discoveries made during the Second World War have brought about astounding results.

Malaria, that great human killer, usually the bane of military operations in the tropics, has been well controlled. As the war proceeded the incidence was reduced to one quarter of the rate of the early months. The overall death rate from malaria in the army fell to .01 per cent. There is no record of malaria outbreaks having been started by returning service carriers. Atabrine has been found more effective than quinine. Among preventive measures, the control of mosquitoes by the wonder insecticide DDT has produced results that have never heretofore been achieved in the control of malaria. The war experience demonstrated that a daily dose of 0.1 gram of atabrine would prevent the appearance of clinical malaria, where combat conditions made it impossible to control the mosquitoes which convey the parasite. If atabrine is continued after an acute attack that has been treated with the standard dosage it will also prevent recurrences. It is generally conceded that where atabrine has failed, the cause was largely due to the failure of the patient to take the drug as prescribed. Experience shows that atabrine administered to large groups of troops in doses of 0.1 grams daily for many months has not caused any demonstrated ill effects. Atabrine also has the advantage of not being as unpleasant to take as quinine. Falciparum malaria is as yet not controlled by any known drug.

Schistosomiasis, which is so common in the river valleys of Japan and in Okinawa, is caused by a small fluke found in pools and running streams, and which in a matter of seconds burrows through the skin and infects an individual. In areas in which schistosomiasis prevails, precautions are taken to prevent the use of untreated water either as a drink or for bathing or washing. Fortunately the disease, which attacks the intestines or liver, is rarely fatal. Usually there is fever, followed by steady prolonged discomfort and ill-health.

When the Allied troops entered Naples, there was just beginning a serious typhus outbreak which might have caused several hundred thousand deaths. This was controlled in an amazingly brief period of time by simply blowing

DDT dust down the necks of the entire population. The Neapolitans were so delighted to have their lice-infested bodies freed of parasite that many came again and again for treatment.

The United States Navy, at Marine Barracks at Klamath Falls, Oregon, by careful observation proved that filariasis soon disappears among infected individuals. This confirms the experience of the British, who have held for many years that those infected with filariasis in the tropics, if in the early stages, would soon recover when the victims returned to Great Britain.

The control of dysentery in the armed forces has not been as successful as the control of other diseases, but as dysentery is often spread by flies, DDT elimination of the fly pest and newer treatment have resulted in greatly reduced incidence. Dysentery is caused by two types of organisms: bacteria, a vegetable parasite, and amoeba, an animal parasite. Serums and sulfa drugs have been of considerable assistance in combating the bacterial infections, and carbarsone has continued to be very effective in the treatment of the amoebic form.

While syphilis and gonorrhea are not strictly tropical diseases, yet tropical conditions favor their spread. Penicillin has proved most effective in their control.

Skin diseases, particularly trichophytosis (ringworm), have been the cause of much annoyance and anxiety to the armed forces. Lack of steam laundry facilities has been largely responsible for their prevalence. Most skin diseases yield quickly to the newer treatments that have been developed, and in the United States where good laundry and sanitary bathing facilities exist there is little danger of serious spread.

VICTOR G. HEISER.

TRUCIAL OMAN. See ARABIA.

TRUK. See JAPANESE SOUTH SEA ISLANDS—*Caroline Islands.*

TRUMAN, Harry S., president of the United States: b. near Lamar, Mo., May 8, 1884. On April 12, 1945, Mr. Truman took the oath of office as the 32d president of the United States, succeeding the late Franklin Delano Roosevelt. (Mr. Truman is the seventh vice president to succeed to the presidency upon the death of the chief executive.) Born near Lamar, Mo., he grew up on a farm some 15 miles from Kansas City. He sought an appointment to the United States Military Academy after graduation from high school, but was rejected because of defective eyesight. Save for a five-year period in Kansas City, he lived with his parents until he entered the armed services at the beginning of the First World War with his National Guard company. He went overseas as a lieutenant in the field artillery; took part in the St. Mihiel and Argonne offensives; and emerged with the rank of captain. He has been a colonel in the Field Artillery Reserve Corps since 1927.

Mr. Truman entered Jackson County politics in 1922, a protégé of the Pendergast Democratic organization, and was elected Jackson County judge, an administrative, nonjudicial position. He lost his judgeship in 1924; regained it in 1926; and served until 1935, when he entered the United States Senate. His first term in the Senate was uneventful, and it was not until 1940 that he came into national prominence as chairman of the Special Committee to Investigate the National Defense Program, better known as the Truman Committee. As committee chairman, he traveled as much as 30,000 miles a year, visiting war plants, and became one of the best-informed persons on the war production program of the United States.

Mr. Truman was nominated for the vice presidency at the Democratic National Convention in July 1944, and was elected the following November. In June 1945, he addressed the closing session of the United Nations Conference on International Organization in San Francisco, and in July, conferred in Berlin with Anglo-Russian statesmen.

TRUSCOTT, Lucian King, United States Army officer: b. Chatfield, Texas, Jan. 9, 1895. Lieutenant General Truscott commanded the American Fifth Army in Italy for the final phase of the Allied war against Germany. On Oct. 7, 1945, he assumed command of the American Third Army in Germany, replacing Gen. George S. Patton, Jr.

A former school teacher, General Truscott obtained a commission in the cavalry, Officers Reserve Corps, in the First World War; served in Hawaii from 1919 to 1921. In June 1926, he was graduated from the Cavalry School, Fort Riley, Kansas; completed courses in its advanced class a year later; and was for a time an instructor at Fort Riley. He was graduated from the Command and General Staff School in 1936. He was sent to the European theater of war in 1942, and in March 1943, was named commanding general of the 3d Infantry Division, which later distinguished itself in the North African and Sicilian campaigns under General Patton. In January 1944, he became deputy commander of the 6th Corps, and in March of that year, assumed command of the corps in Italy. He later moved with it to France, and in December, succeeded Gen. Mark Clark as commander of the American Fifth Army.

General Truscott's decorations include the Distinguished Service Medal, the Legion of Merit, the Distinguished Service Cross, and the Purple Heart. In June 1943, General Giraud decorated him with the French Legion of Honor, and in that same year, King George of England made him an Honorary Companion of the Most Honorable Order of the Bath.

TUAMOTU ISLAND. See FRENCH OCEANIA.

TUBERCULOSIS. Provisional statistics on tuberculosis mortality and morbidity for 1944, based on reports from state health officers, and published by the National Tuberculosis Association, indicate a favorable downward trend in the former, and an upward trend in the latter. The estimated death rate is 40.8 per 100,000, a decline from 42.3 in 1943. The Metropolitan Life Insurance reports of mid-1945 indicate a continuation of this downward trend. The morbidity rate increased by 5.7 per cent in 1944 over 1943. It is not thought that this represents any increase in cases, but rather a reflection of the greatly increased tempo in case finding by mass methods throughout the country. The excellent job started and continuing in induction centers is steadily expanding for civilian population groups.

Situation in Europe.—The tuberculosis situation in the warring European countries is not available in sufficient detail to appraise accurately its true significance, but that it has increased in many countries is generally conceded. The deaths in Britain increased sharply in 1940, reached a peak in 1941, but have declined each year since. The ratio of deaths to new cases increased from 0.52 in 1939 to 0.61 in 1940. The latest estimates indicate a ratio of 0.46 in 1943. Percy Stocks

and associates suggest that these ratios may not decline materially in the postwar period, due to the increasing effort in mass survey work in the British Isles.

Dublin reports increases of 50 per cent in Belgium and Holland, and a steady rise in France. Young children appear to be the greatest sufferers, and the tuberculosis is of a rapidly fatal type. Italy has had a threefold rise, and in Paris the increase was 10 per cent in 1941 over 1939, with a 30 per cent increase among children. The larger German cities between 1939 and 1942 indicated a 24 per cent increase. Preliminary reports would suggest that in other warring countries even greater increases are to be expected, but it will be some years before the populations of these countries are resettled and accurate data available.

Tuberculosis and War.—Tuberculosis has always been a major military problem in every war. During the American Civil War, the admission rate to hospitals was 6.1 and the death rate 2.2 per one thousand strength per year. For the decade prior to the Spanish American War, the admission rate was 2.7 per thousand strength per year, and it rose each year thereafter until 1900, when it was 4.9. In the First World War, the admission rate was 12.0 per thousand strength per year, but in the Second World War, Col. Esmond Long reports that the rate was but one tenth of the above. This remarkable improvement is due to two things: first, the army induction centers eliminated practically all cases by the mass X-ray method, and secondly, the prevalence of tuberculosis has steadily declined since before the turn of the century. Also the army facilities for handling cases today are much better than 30 years ago.

Approximately 150,000 men, with X-ray shadows indicating obviously active disease, or a disease that might be reasonably presumed to activate under the rigors of military duty, were rejected at induction stations. As important as this method was in eliminating tuberculous men, some were missed as was shown by a review of 50,000 X-rays of men accepted. There were from 10 to 15 cases per 10,000 men who should have been excluded at the induction centers, but for a variety of reasons were considered as satisfactory. The experience gained by the examination of the millions of men passing through the induction stations will largely correct this possible error in the future. The discharge rate per thousand men has remained below 1.0 per cent since the early part of 1942, but there was one period in mid-1943 when the rate exceeded 1 per cent, due to a change in army directives which eliminated a large number of probably stable lesions in an effort to improve the physical quality of the army personnel.

Similar experience in the navy has undoubtedly resulted from their X-ray program, but comparable figures are not yet available. The British Army and Navy have used the same technique with similar good results.

W. H. Hatfield, of the provincial board of health in British Columbia, reported that in 1944, 15 per cent of admissions to tuberculosis institutions came from the Department of Veterans Affairs. This upward trend is a reflection of an increase in pleurisy with effusion noted in 1941 by Colonel Adamson and Captain Keevil of the Royal Canadian Army Medical Corps. A similar rise was not manifest in troops in Canada, but was noted in troops overseas who had been in regions with a fairly high prevalence rate. Furthermore this increased prevalence in pleurisy was chiefly among Canadians coming from low prevalent areas at home. Most likely they were receiving their first infection overseas. There has been no comparable rise noted in troops of the United States Army.

Familiar Susceptibility to Tuberculosis.—Mildred Puffer reported some rather interesting studies on familial susceptibility to tuberculosis on the basis of data collected from the Williamson County Tuberculosis Study which was started in December 1931. The literature contains much comment on this subject over the years, but it is based upon data that may be questioned, and is by no means comparable to the above. While Puffer's findings are not conclusive, they do indicate a definite trend that is important in evaluating the danger of tuberculosis in a given individual. If the disease, when found, has reached an advanced stage, the chances of death are far greater than would be expected in the average population, whereas if found in a minimal form, the chances of survival are practically equal to that of the average population.

The behavior of the minimal lesion so often found in mass surveys is of particular interest. Persons under 45 years of age do not fare so well as those above that age. Those with family histories of tuberculosis are more likely to develop a serious form of the disease than those without such a background. A regression of their disease is less in those exposed to sputum positive contacts and greatest among those without such exposure. In other words, there is an increased susceptibility to develop serious tuberculosis when there is a family history of the disease. This is not a new discovery, but rather a substantiation of previous observations, and emphasizes the basic criteria in tuberculosis control—supervision of the active case and his contacts, and the isolation of all positive sputum cases. These simple facts need emphasis in these times when so much thought and effort are being directed to mass surveys.

X-Ray Diagnoses.—Case finding continues to be the keystone of tuberculosis control, and each year additional thousands of the general population go on record as having had a chest X-ray. These programs started 10 or more years ago and reached their real stride with the induction center examinations of recruits for the armed services. There is no available tabulation showing the numbers being X-rayed among the general population, but the never-ending reports in the literature on tuberculosis indicate that millions of people are being reached. In part, this has developed on a local basis through the departments of health and the tuberculosis and health associations, as well as through an increasing number of hospitals, industries, and other organizations controlling groups of the population. Facilities for this work will be greatly expanded during the coming years through federal funds distributed by the United States Public Health Service in its nationwide tuberculosis control program.

The X-ray manufacturing companies are entering an era never before visualized in the manufacture of equipment for this purpose. Unfortunately not all communities will be equipped with facilities to care for new cases found, and some will not provide the accepted minimum requirements for supervision of such cases. It is hoped that the detection of a case, under any circumstances whatsoever will awaken the sufferer's responsibility to seek further medical ad-

vice, and thereby lessen the further spread of infection in the home or the community.

Calcification in the Lungs.—Calcified nodules in the lung have for years been considered the residuum of a previous tuberculosis infection and disease. For some years past, however, there have been areas in the South where individuals showing these changes by X-ray were nevertheless negative reactors to tuberculin. It has been observed in occasional cases that a person may lose his sensitivity to tuberculin protein, but when as high as 75 per cent showing apparent calcium are also negative to tuberculin, it becomes obvious that either the calcium was not caused by tuberculous infection, or else there was something wrong with the tuberculin test used. This latter question has long since been resolved, but what the possible etiological agent might have been to produce calcium has remained a secret until recently. The finding of calcium in the lung almost invariably labeled a person as tuberculous. This was unjustified if not true, and in the induction centers, hundreds of men who were otherwise suitable for military service were rejected because of these shadows.

Carroll Palmer, of the United States Public Health Service, working on this problem, was led to one of the mycotic diseases—histoplasma capsulatum. His studies have shown that calcification follows infection by histoplasmin, and that a suitable skin test similar to the tuberculin test will give reactions in the majority of those with calcification and negative to tuberculin. This will open another door to our knowledge of tuberculosis and will clear many individuals of a tuberculous taint who have been so labeled in the past.

Chest Surgery.—The most noteworthy advance in chest surgery in the treatment of tuberculosis in the lung is pulmonary resection. This operation removes either a lobe (lobectomy) or an entire lung (pneumonectomy). While the method has been applied for the past decade, it has not been until the more recent years that surgical techniques have been improved sufficiently to make the operation a real possibility for many cases. The improvement of intratracheal anesthesia, and the new era of chemotherapy have also contributed to the success of this procedure. Overholt and Wilson, in reporting on 60 cases so treated, indicate operative mortality of 7 cases out of 60, or 11.6 per cent. Considering these cases on the basis of a reasonable initial risk, only 2 of 47, or 4.3 per cent died, whereas 5 of 13, or 38.5 per cent of those considered as desperate risks succumbed. The case fatality rate on those dying after operation was 13.6 per cent for 59 cases, 6.5 per cent of those of reasonable risk, and 38.5 per cent for those considered desperate risks.

These results clearly indicate that with the proper selection of cases, operative and case fatality rates can be considered as reasonably low. It is also obvious that with the marked advance in technique in the recent past, this form of surgery will come into more popularity in the coming years. See also SURGERY, PROGRESS IN.

Medicinal Treatment.—Chemotherapy of tuberculosis continues in the experimental stage, and to date there is no drug or preparation that can be accepted as specific, although some workers appear to be securing an increasing number of good results. James Edlin and co-workers have reported on promin inhalation therapy, in which they attempted to bring the drug in direct contact with the lesion. While their experience is limited, it appears that benefit is noticed only in endobronchial ulceration, rather than parenchymal lesions. The latter lesions are by far the most common.

One of the basic problems in chemotherapy has been the lack of uniformity in technique and procedure, followed by those engaged in the field, Dr. William H. Feldman and Dr. H. C. Hinshaw, of the Mayo Foundation, have attempted to set forth an outline of laboratory procedures for testing antituberculosis substances in experimentally infected animals. This will be of the greatest value as these workers have devoted considerable time to the evaluation of chemotherapeutic agents in animals and the human. These authors in a recent report on promin used in animals, indicate that guinea pigs infected with tubercle bacilli, and treated continuously for a prolonged period, after medication is stopped, eventually die of tuberculosis. Also that in animals previously under prolonged treatment, followed by superinfection, had no significant effect on the subsequent course of the disease.

Louis Benson and Louis Goodman report the same problems with diasone as have been previously reported. In their studies, only about 20 per cent seemed to benefit, and they noted many toxic effects of the drug. It is obviously far from being the hoped-for cure originally reported. Essentially the same conclusion may be stated at this time for other types of chemotherapy in tuberculosis. See also PUBLIC HEALTH SERVICE, U. S.

HERBERT R. EDWARDS,
Director, Bureau of Tuberculosis, New York City Department of Health.

TUCKER, Beverly Randolph, American neuropsychiatrist: b. Richmond, Va., April 26, 1874; d. there, June 19, 1945. Dr. Tucker, known for his research in pellagra, advanced the theory that pellagra is a virus disease and that the skin and mucous membrane lesions are of neurologic origin. A student at Virginia Military Institute from 1890 to 1892, Dr. Tucker received his M.D. degree from the Medical College of Virginia, Richmond, in 1905. After postgraduate work in Philadelphia, New York, London, and Vienna, he became adjunct professor in 1907, and professor from 1912 to 1938 of nervous and medical diseases at the Medical College of Virginia. He was president and physician in charge of Tucker Hospital. He was author in 1914 of the pellagra section of the *British Medical Annual,* and in 1920 of the section on cranial nerves and their diseases for *Tice's Practice of Medicine.* In addition to a number of books on nervous diseases, he also wrote several nonprofessional works, including *Narna Darrell,* an historical novel (1936), and two volumes of verse.

TULAGI. See WESTERN PACIFIC ISLANDS, BRITISH, Section 1.

TULLY, Richard Walton, American playwright: b. Nevada City, Calif., 1877; d. New York City, Jan. 31, 1945. Mr. Tully is probably best known for his play, *The Bird of Paradise,* which was generally credited with being one of the first to popularize Hawaiian music, costumes and atmosphere in the United States.

Educated at the University of California, Mr. Tully was graduated in 1901 as a Bachelor of Law, but soon abandoned the profession to write plays, and presently his *The Rose of the Rancho* was given with much success. His next play, *The Bird of Paradise,* was produced two

years before the First World War with Laurette Taylor leading the cast. This play was the subject of one of the bitterest plagiarism suits on the record. A suit was brought by Mrs. Grace Fendler, of Los Angeles, alleging that it was plagiarized from her play, *In Hawaii*. Although the first decision by the State Supreme Court was in favor of Mrs. Fendler and confirmed a referee's award to her of $608,361 against Mr. Tully and $173,529 against Oliver Morosco, who produced the play, it was later reversed by an order of the Court of Appeals. Another of Mr. Tully's plays, *Omar the Tentmaker*, ran for nearly 1,000 performances.

TUNGSTEN. The status of tungsten in 1944 shifted from a critically short material to one of adequate supply, and throughout the year tungsten ore and concentrates, ferrotungsten, and most tungsten products were free from allocation control, according to the United States Bureau of Mines. The upward trend in production, which began in 1940 and reached an all-time high of 12,055 short tons in 1943, turned downward to 10,259 tons (60 per cent WO_3 basis) in 1944. Shipments of tungsten concentrates were 10,282 short tons (60 per cent WO_3 basis) valued at $14,408,519 in 1944, compared with 11,945 tons valued at $17,973,685 in 1943. California, Idaho, and Nevada supplied 94 per cent of the total output. Idaho was again the chief producing state, and the Bradley Mining Company operating the Yellow Pine mine in that state was again the largest producer.

TUNISIA. A French protectorate (regence) in North Africa, bounded north and east by the Mediterranean, south by Libya, and west by Algeria. The area is 48,300 square miles, and at the 1936 census the population totaled 2,608,313, comprising 2,395,108 natives (2,335,623 Arabs and Bedouins, and 59,485 Jews) and 213,205 Europeans (108,068 French, 94,289 Italians, 7,279 Maltese, 323 Spaniards, 454 Greeks, and 2,792 other foreigners). The country has been under French protection since 1881. Tunis (pop. 219,578) is the capital and chief port, and other ports are Sfax (43,333), Bizerte (28,468), and Gabès (18,611); Kairouan (22,991) is an inland city sacred to the Moslems, and Sousse (28,465), a town of commercial importance.

Government.—Nominal sovereignty is vested in a native ruler, the bey of Tunis (Sidi Mohammed al-Amiin installed May 15, 1943); his legislative enactments, prepared by a French staff, are promulgated by the resident general. The bey is assisted by a Grand Council, composed of native and French officials; the latter include the resident general, who acts as the bey's foreign minister and has the military and naval commanders under his orders. The resident general also heads the Ministerial Commission, a civil administration divided into 11 departments; for administrative purposes the country is divided into 19 districts and 6 "military circles," district governors being French and their subordinates natives. The residents general of Tunisia and Morocco, and the governor general of Algeria, are responsible to a commissioner delegate general for North Africa, whose post was created by decree on Aug. 28, 1944; Gen. Georges Catroux was first incumbent of the post. When relations were re-established between France and Italy on March 1, 1945, Italy abandoned all special priviliges which Italians had enjoyed in Tunisia since the Convention of 1887, and Italians there then became, like the rest of the population, citizens of Tunisia. Private trade between the United States and Tunisia was resumed on July 4, 1945.

Agriculture.—Most of the acreage under cultivation is sown to cereals. Wheat is grown extensively in the plateau and northern regions, and barley in the central and southern parts; other cereals are of comparatively little importance. Legumes, particularly beans, lentils and chick peas, are grown on a large scale; other types of legumes, such as berseem, alfalfa, and vetch, are frequently planted with barley, oats, or fenugreek, the last an annual legume with white flowers. Vineyards are concentrated in the extreme northeastern portion of Tunisia. In 1944 production of wine was estimated at 411,000 hectoliters (1 hectoliter = 26.42 gallons), as compared with 400,000 hectoliters in 1943. In addition, an estimated 28,000 metric quintals (1 metric quintal = 220.46 pounds) of table grapes and raisins were produced in 1944, and about the same amount in 1943. The country is the main olive-growing area of North Africa; normally, it ranks third among exporters of olive products. Estimates of the 1944–45 olive oil crop indicated a yield of about 80,000 tons. Potatoes are also grown for export; small areas are under flax and tobacco. Most vegetables suitable for temperate or subtropical climates do well, but production for export is insignificant. Dates are grown in the oases of the southern region; two thirds of the citrus plantations are in the Cape Bon area. Other fruit trees include the almond, apricot, fig, cherry, plum, pomegranate, peach, and banana.

Sheep and goats abound. Of beasts of burden, camels are the most numerous and of greatest importance — followed by asses, horses, and mules. The fisheries are extensive.

Mining.—The world's largest phosphate reserves are in North Africa, and the bulk of those (1,350,000,000 tons) are in the Tunisia-Algeria fields, the producing centers of which are around Sétif, the plateau of Batna, Kef, and Gafsa. Iron and lead are also mined, and other minerals include zinc, silver, mercury, and salt. Large stocks of iron ore, phosphate, and lead were accumulated in 1944 for shipment to Metropolitan France.

Manufactures.—Carpet weaving, saddle making, leather embroidery, the making of slippers, ancient style pottery, and matting, and the spinning and weaving of wool for garments constitute the chief manufactures and native industries. There has been some decline in tanning and silk weaving.

Communications.—State-owned railroads (1936) had a length of 1,000 miles, and a further 293 miles were operated by a company mining the phosphate deposits. The railroad along the North African coast through Morocco and Algeria continues into Tunisia as far as Tunis, and from that city narrow-gauge lines run southward and inland; there is also a north-south line along the border of Algeria. In 1935 there were 4,155 miles of highways; these were greatly improved and extended during military operations against the Axis forces in 1943.

TUNNELS. In September 1945, it was announced that no further approvals will be necessary from the War Production Board for carrying out the completion of the Battery-Brooklyn vehicular tunnel. That is, the city of New York was free to start work as soon as possible. Considerable preliminary work had to be done before construction was resumed about the end of the

year. Work on this tunnel was stopped at the request of the War Production Board in October 1942. At that time, about 2,800 feet of the 9,117-foot tunnel had been dug from the Manhattan end, and about 1,200 feet from the Brooklyn end has been excavated. Bids for the construction of a ventilating shaft adjacent to the end of Governors Island were advertised for in October, and when the shaft is finished, a contract will be let for the construction of a ventilator building.

In June 1945 the New York City Tunnel Authority issued a report recommending the construction of a tunnel across the Narrows under the Lower Bay of New York to connect Brooklyn and Staten Island. The cost was estimated at $62,000,000, exclusive of street approaches. On November 16, a special committee appointed by Mayor La Guardia reported adversely to the project, saying that while it is entirely feasible from an engineering standpoint, it is not practical at this time from the financial standpoint, and therefore should be deferred for at least 10 years. The La Guardia committee dismissed as "unthinkable" a suggestion that Manhattan and Staten Island be directly connected by tunnel.

Another major tunnel project to give additional relief to crosstown traffic congestion on Manhattan Island is the proposed Crosstown Vehicular Tunnels, announced in October 1944, by the New York City Tunnel Authority. It is proposed to have four tunnels, one each under 36th and 38th streets for through traffic, and two under 37th Street for local traffic. These tunnels are to connect the Queens Midtown Tunnel, which links Manhattan to Long Island, to the Lincoln Tunnel on the west side which connects with New Jersey. Connections will also be made with the east and west side highways of Manhattan. The tunnels will go through solid rock 80 feet underground, and below the subway tunnels. The cost of this project with terminals is estimated to be $75,200,000.

The Colorado-Big Thompson project which has been held up during the past year has now been started afresh, and the Alva B. Adams 13-mile tunnel under the Rocky Mountains is expected to be completed by May of 1946. It is to carry 90,000 acre-feet of water to the east side of the mountains for irrigation purposes during the growing season. By means of the Shadow Mountain Dam water will be diverted from the Colorado River's North Fork, whence it will flow into Grand Lake and from there to the west end of the tunnel.

In New Mexico the $8,155,000 Tucumcari Irrigation Aqueduct is partially completed and the first 38 miles of canal and tunnel is in operation. The completed project will be 75 miles long and will include 4 tunnels and 23 siphons. These tunnels and siphons are necessary due to the steep sides of the Conchas River Valley which is followed, and which has many deep arroyos that cut up the valley sides.

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Consulting Engineer, New York.

TURKEY. Formerly known as the Ottoman Empire, since 1923 Turkey has been a republic comprising the entire territory of the peninsula of Asia Minor together with a small area of southeastern Europe east of the River Maritsa. The end of the First Balkan War in 1913 saw a considerable reduction in the Ottoman Empire's European territory, its former holdings being divided among the Balkan victors—Bulgaria, Greece, Montenegro, and Serbia. However, these losses were minor compared with those imposed by the 1912 Treaty of Lausanne, which surrendered Tripoli and Cyrenaica to Italy, and by the 1920 Treaty of Sèvres. Turkey was an ally of Germany in the First World War, and was defeated in October 1918. By the Treaty of Sèvres, imposed by the victorious Allies, Turkey lost the Arab provinces which became the states of Syria, Lebanon, Palestine, Transjordan, Saudi Arabia and Yemen; while in Europe, Greece received in compensation for her losses Eastern Thrace as far as Çatalca (Chatalja).

In April 1920 a group of patriots organized at Angora (now called Ankara) a government calling itself the Grand National Assembly of Turkey. This revolutionary junta of young nationalists, smarting at the humiliations to which their country had been subjected by the inept policy of a weak and corrupt government, soon became by popular choice the de facto government. The National Assembly raised and equipped a powerful army, but not until two years later did its brilliant commander, Mustafa Kemal, employ it to revoke by force of arms the more odious terms of the Sèvres Treaty. Meanwhile, Turkey was under the domination of two governments: the moribund sovereignty of the sultan at Constantinople, honeycombed with nationalist sympathizers; and the National Assembly at Ankara. Late in 1921, Ankara concluded a treaty with France which, while it greatly heartened the Nationalists, correspondingly depressed and irritated Greece and her ally, Great Britain. (The First World War victors were already quarreling bitterly over the spoils.) The overwhelming defeat of the Greek forces and their ejection from Izmir (Smyrna) by Kemal in 1922 (Eleutherios Venizelos, the Greek statesman, looked in vain to Lloyd George for assistance in this crisis) led successively to the abolition of the sultanate, the transfer of the nation's capital from Istanbul to Ankara, the realistic treaty signed between the Allies and Turkey at Lausanne on July 24, 1923, and, finally, the establishment of the republic.

On Oct. 29, 1923, Ghazi Mustafa Kemal Pasha, the nationalist leader who had proved himself as brilliant a statesman as a warrior, was elected first president of the Turkish Republic. In 1927 and 1931 he was re-elected, and in 1934 a law was passed giving him the family name of Atatürk (Father of the Turks). Again re-elected in 1935, Kemal Atatürk ruled until his death on Nov. 10, 1938. The vigorous policy of westernization which he pursued has continued to motivate his successors.

Area and Population.—By an agreement concluded at Ankara on June 23, 1939, between the French and Turkish governments the sanjak of Alexandretta (the Hatay) was incorporated into the territory of the Turkish Republic. The area of the republic is estimated at 767,119 square kilometers, or 296,107 square miles. According to the 1940 census, the population was 17,820,950, of whom 1,516,005 lived in European Turkey and 16,304,074 lived in Asiatic Turkey. On Oct. 28, 1945, official announcement was made by Ankara that the population, according to the 1945 census, had increased to 18,871,000.

Religion.—Although Moslems form the vast majority of the people, Islam is no longer the state religion, a law having been passed by the Grand National Assembly in 1928 amending the Organic Statute and providing complete separation of state and church. According to the 1935

census there were in Turkey 15,838,673 Moslems, 125,046 Orthodox, 78,730 Jews, 44,526 Gregorians, 32,155 Roman Catholics, 11,229 Armenians, 8,486 Protestants, 12,965 adherents of other religions, 559 without religion, and 356 undeclared.

Defense.—The army consists of 11 army corps, comprising 23 divisions, an armored brigade, 3 cavalry divisions and 7 fortress commands. These formations would appear to indicate a war strength of about 500,000. However, the total number that could be mobilized is estimated at nearly 2,000,000, most of whom would have had prior training, since universal military service is obligatory. The navy's largest ship is the battle cruiser *Yavuz*, formerly the German *Goeben*, launched in 1911 and displacing 23,100 tons; her main armament consists of ten 11-inch guns. The effective strength of the navy at present is about 800 officers and 4,000 men. Details of the air force strength and equipment are secret, but in 1940 there were approximately 370 first-line aircraft, and a total personnel of about 8,500. The equipment is chiefly of American, British, and German types.

Events of 1945

Contribution of "Red-Light Neutrality" to Allied Victory.—The fact that Turkish neutrality, like a red light, had for four years stopped Hitler's advance into the Near and Middle East along the Balkan border, as well as along the coastal areas of the Black Sea and the Mediterranean from the Dardanelles to Syria, was recognized during 1945 by German, American, and British statesmen. The German ambassador to Japan, Hans George Stahmer, when taken prisoner near Tokyo by the American Occupation Army, admitted that it was Hitler's plan to join the German and Italian with the Japanese forces by reaching the Indian Ocean through the Near East, but that this project was frustrated by a combination of British forces in North Africa and Turkey's neutrality in Asia Minor. Documentary evidence that Hitler alternately threatened Turkey with "total annihilation," and assured her of "friendly co-operation" when the German Army marched into neighboring Bulgaria was uncovered in the ruins of Hitler's mountain chalet where shorthand notes of three letters addressed to President Ismet Inönü were discovered. A secret order No. 30, dated May 23, 1941, and produced at the Nürnberg trial, corroborated Hitler's plan to prepare a combined attack on the Near and Middle East through Turkey, Iraq and Iran.

The American ambassador to Turkey, Laurence A. Steinhardt, and also Secretary of War Henry L. Stimson made statements, the latter declaring: "We know that Hitler intended to break through to the Near East; had he succeeded, the entire course of war would have been changed." Commander Philip Young, special assistant to Leo T. Crowley, when the latter was director of the Foreign Economic Administration, elaborated this point by saying: "Turkey was an essential block in the barrier that the Allies built around eastern Europe. At the high tide of German power, Turkey was surrounded on three sides by German troops. Had she become a belligerent, Axis forces would have poured across Turkey to attack the Russians from the lower Caucausus, to cut off Allied oil supplies from Iraq, to cut the Persian corridor to Russia, to strike at Suez from the Asiatic side, and to move on India for a Instead, the Persian Gulf-Iran route, protected by Turkey's "red-light neutrality" and reconstructed with American rolling stock under command of Maj. Gen. Donald H. Connelly, was continually available for the transportation to south Russia of about 4,380,000 tons of supplies including 143,000 vehicles and 3,087 planes.

Admiral Sir Howard Kelly, who had been stationed for more than four years in Turkey, told a meeting of the Royal Maritime Society: "The early entry of Turkey into the war would have been for us a diplomatic victory, but it might also have been proved to be a military disaster. . . . Throughout the whole war Turkish influence in the Moslem world has benefited us far more than has ever been recognized."

Declaration of War Against Germany and Japan.—The decision of the Turkish National Assembly to break off diplomatic and economic relations with Germany and Japan as from Jan. 6, 1945, was followed on February 23 by the National Assembly's unanimous approval of the government's decision to declare war on Germany and Japan. Foreign Minister Hasan Saka told the Parliament that on February 20 the British ambassador had submitted a memorandum pointing out that in accordance with decisions reached at the Yalta Conference, those associated nations which declared war on the Axis before March 1 would be invited to take part in the San Francisco World Security Conference.

By Turkey's declaration of war the Dardanelles, which in compliance with the international Montreux Convention of 1936 had until then been kept closed to warships of the combatant nations, was opened to Allied shipping and thus provided a new route to Russian Black Sea ports, the safest and shortest way, 3,000 miles shorter than the Persian Gulf-Iran route.

American Lend-Lease.—Shortly before Foreign Minister Hasan Saka addressed the National Assembly to ask for the war vote, he signed with United States Ambassador Steinhardt a formal lend-lease agreement which had been under negotiations for several months.

San Francisco World Security Conference.—The delegation to San Francisco was composed of Foreign Minister Hasan Saka, the Turkish ambassador to Washington, H. R. Baydur, and the assistant to the secretary general of the Ministry of Foreign Affairs, F. C. Erkin. From San Francisco the foreign minister went to London, where he was received by Anthony Eden on July 11. The National Assembly in Ankara ratified the United Nations Charter and the Statute of the International Court of Justice on August 16.

Denouncement of the Treaty of 1925 by Soviet Russia.—In Moscow the Foreign Commissariat announced on March 21 that on March 19 V. M. Molotov had informed the Turkish ambassador of his government's decision to denounce the Turkish-Soviet Treaty of 1925 on the ground that it no longer corresponded to the new situation created by the profound changes that had occurred, especially during the war, and that it needed great improvement. The Turkish ambassador to Moscow, Selim Sarper, went to Ankara to report and returned to Moscow after six weeks. An exchange of views between Ankara, London, and Washington followed, since the denouncement of the Turkish treaty was interpreted as an attempt by the Soviet Union to obtain dominating influence in Turkey by a new bilateral pact. Although Soviet Russia did not present any note making formal demands, it was

Moscow informally were as follows: (1) that prior to any international discussion of the revision of the Montreux Convention governing the control of the Black Sea straits (Dardanelles and Bosporus), the Turkish government should agree to grant the USSR rights to strategic defensive bases in the Straits area, manned by Turks during peacetime but by Russians, too, during wartime; (2) that after an accord on this point was reached in principle, an international conference of interested powers should be held to draw up a new Straits agreement to replace the Montreux Convention and that the Turkish government should agree beforehand to support the Soviet position during such international discussion; (3) that specific talks should commence between the USSR and Turkey concerning the return of the Turkish border areas of Kars and Ardahan to Soviet Russian Armenia. The Turkish answer was "No" on all three points. The Turkish government informed Moscow that it could not commit itself beforehand on its attitude in an international parley on the Straits, although it desired to see such a gathering summoned. The Turkish-Soviet Treaty expired on Nov. 7, 1945.

Armenian, Georgian, Kurdish and Iranian Issues.—Linked up with Soviet Russian pressure on Turkey for control of the Dardanelles, called by a Turkish commander "the throat of the Turkish nation," is the Soviet campaign along the Turkish-Iranian-Iraqui borders, raising Armenian, Georgian, Kurdish and Azerbaijan issues involving race, religion, oil and "security." Soviet Russia's claim to the Turkish districts of Kars and Ardahan is based on the fact that this territory, after having been Ottoman-Turkish for centuries, was ceded by the Ottoman Empire to Czarist Russia in 1878 after the Russo-Turkish War; but she ignores the other fact, that it was returned by Soviet Russia to the Turkish Republic according to the terms of the Russo-Turkish treaty of friendship in 1921 after a plebiscite that gave the provinces to Turkey by a vote of 85,000 to 1,900. Although no Armenians live in the areas of Kars and Ardahan, Soviet Russia is attempting to add these territories to her Armenian Republic.

For the unofficial claim made by two Soviet-Georgian professors to 12,500 Turkish square miles, stretching westward along the Black Sea beyond Trabzon (Trebizond) to Giresun, all to be added to Soviet Georgia, two reasons are advanced: (1) that of "strategic necessity" to protect the oil fields of Batum, and (2) the existence of Georgian refugees from Czarist Russia in that area.

Prime Minister Saraciojlu stated on December 1 that the government's main object was to maintain the country's integrity, for which it had adequate moral strength. "Turkey," he said, "from the Premier down to the peasant, is resolved to remain free and would fight for freedom if threatened." He affirmed that Turkey would never be willing to become a vassal state of any power. This statement was interpreted as a declaration of policy addressed to diplomatic circles which maintain that the threefold Russian pressure for the Dardanelles, "Armenia," and "Georgia" aim at forcing Turkey, the only completely independent state in the Middle East, and therefore called by the Russian press "the only gap in the Soviet security line," away from her British-French alliance and into one with Russia.

Other Foreign Relations.—The Turkish government recognized the Polish provisional government on August 5. On the same day the Turkish foreign minister was received by the Lebanon ministers in Beyrouth to discuss the questions of Turkish recognition of Syria and Lebanon and of Lebanese properties in Turkey. On September 17 Prince Abdul Illah, regent of Iraq, with his prime minister arrived in Ankara to discuss measures to improve economic and political relations. Iraq and Turkey are, with Iran and Afghanistan, signatories of the Saadabad Treaty of nonaggression and noninterference which links them with the Arab states. Efforts to strengthen that bond aim at forming a solid Moslem bloc (Turkish-Arab-Iranian) in the Middle East to resist foreign intervention and to co-operate in schemes for regional betterment. On December 11 the Turkish prime minister declared in the National Assembly that the Greek-Turkish treaty of alliance, which would involve Turkey were Greece attacked, was still binding.

Bid for Oil.—In July discussions started with British and American representatives concerning Turkey's needs for oil, and ways of increasing the supplies from Anglo-American Middle Eastern sources. Formerly Turkey had obtained an important part of her petroleum requirements from Rumania, but after the Axis defeat, Rumanian oil was diverted to Soviet Russia, partly as reparations, partly on a commercial basis. Turkish authorities were therefore on the lookout for oil supplies to cover future needs and to free the Turkish economy from exclusive dependence on Soviet Russia.

Economic Reconversion to Peace.—Turkey's economically privileged position had its start in 1939 when both the Allies and the Axis began to make large purchases of vital war commodities from her, with a resulting boom not only for business men and speculators but for the peasants. This boom collapsed when Turkey declared war against Germany. Germany not only no longer took Turkish products but the Allies no longer needed to buy surplus products to keep them from Germany. But Turkey, even during the war, had depended on Germany, geographically the nearest great industrial power, for essential supplies of rolling stock and industrial machinery, tools, instruments and economic products. Germany's elimination, first as an enemy and then as a defeated country in a state of industrial paralysis, forced Turkey to seek elsewhere for the necessary imports. Consequently, electrical equipment and accessories are being bought in the United States; negotiations have been under way with Canada for the construction of eight maritime vessels to be delivered in 1947; a British delegation arrived in Turkey to arrange the purchase of £300,000 (sterling) worth of rail equipment. As to exports, the readjustment forces function with the removal of the 10 per cent export tax from nearly all commodities. Those which have been freed of the export tax include all of Turkey's chief exports except certain tanning materials that are in great demand in the United States. The removal of the export tax had the effect of curbing prices for foreign buyers but further cuts will be necessary to produce normal trade conditions. Foreign loans are wanted, some for construction purposes such as highways and power plants according to the five-year industrial plan, and others for short terms to bridge seasonal needs between production and organized export.

Budget.—Hitherto the financial year has started June 1, but commencing in 1946 it will start January 1. The budget for the seven months

from June 1, 1945, to Dec. 31, 1945, amounted to £T603,404,824 (1 Turkish pound = $.77625, U.S. currency):

National defense	87,114,700
Extraordinary expenses	179,333,338
Public debts	84,662,026
Ministry of finance	45,016,657
Public education	51,012,927
Public works	37,442,734
Gendarmerie	17,729,402
Public health	17,907,024
Agriculture	14,513,245

Domestic Policy.—President Ismet Inönü, speaking to the youth of the country in Ankara on May 10, reviewed the government's plans for primary education, the distribution of land to peasants, and the development of industries, and said that as soon as precautionary measures imposed by the war were lifted, democratic principles would be given the widest scope in both the political and intellectual life of the country. On June 7 the National Assembly passed a land reform bill under which large estates would be distributed to peasants without land so that they would have sufficient land for their subsistence. On June 11 it was announced that the the government had created a Ministry of Labor which would take over matters affecting labor hitherto handled by the ministries of Economy and Health. The Ministry of Education appointed the first American professor, Dr. Carroll C. Pratt, head of the department of psychology at Rutgers University, as head of the department of philosophy, psychology and sociology in the University of Ankara. On October 22 the government established a naval commando defense service to consist of all men from 16 to 60 and all women from 20 to 45. The president on November 1 stated that the government was opposed to dictatorial principles and aimed at giving the country a freer political life, that elections would be held in 1947 with the direct and secret ballot; in the meantime the laws of the press and of associations would be amended. At the end of December a new political party, the Democratic Party, was being organized by former Prime Minister Jelal Bayar, in opposition to the People's Party. Its program calls for measures of decentralization, a greater degree of local self-government, direct elections and the secret ballot, curbs on state control of industry and encouragement of private enterprise.

ERNEST JACKH,
Columbia University; Author of The Rising Crescent.

TURKEYS. According to the Department of Agriculture's October 1 estimate, 44,150,000 turkeys were raised in the United States in 1945, as compared with the 1944 crop of 36,342,000 birds, and the 1937–41 average crop of 30,723,000 birds. California, which took first place among producing states in 1944, held on to that position in 1945 with a total of 4,942,000 birds. Texas, the second largest producer raised 4,701,000 birds, while Minnesota came third with 4,176,000. Vermont and Maryland, whose turkeys, according to the menus, are supposed to grace every Thanksgiving and Christmas feast served in the hotels of the East, raised 207,000 and 480,000 birds, respectively, which, after all, is considerable turkey.

TURKMEN SOVIET SOCIALIST REPUBLIC. See UNION OF SOVIET SOCIALIST REPUBLICS.

TURKS AND CAICOS ISLANDS. See JAMAICA.

TURNER, Richmond Kelly, U.S. naval officer: b. Portland, Oreg., May 27, 1885. As one of the navy's experts in amphibious warfare, Admiral Turner participated in most of the major engagements of the Pacific war. In August 1942, he commanded amphibious forces in the Guadalcanal-Tulagi invasions, the first retaliatory move in force made by the Allies against Japan, and thereafter directed amphibious operations for the invasions of New Georgia Island, July 1943; Tarawa, Makin, and Abemama atolls in the Gilberts, November 1943; Kwajalein and Eniwetok atolls in the Marshalls, Februray 1944; Saipan in the Marianas, May 1944; and Iwo Jima, gateway to Japan's inner defenses, in February 1945.

Admiral Turner was graduated with distinction from the United States Naval Academy in 1908, fifth in a class of 196. He served in various capacities before he went to the Pacific for active sea duty in July 1942, as commander, amphibious force, South Pacific force. His service medals include the Navy Cross, the Distinguished Service Medal, gold stars in lieu of second and third Distinguished Service Medals, the Victory Medal, Atlantic Fleet Clasp. He was prompted full admiral on May 24, 1945.

TURPENTINE AND ROSIN. See CHEMISTRY.

TWENTIETH CENTURY FUND. Founded in 1919 by the late Edward A. Filene as an endowed foundation to promote better "economic, industrial, civic and educational conditions" in the United States. Since 1937–38 all of the fund's resources have been devoted to its own program of research and educational activities to help the American people solve some of their chief economic problems.

During the war and immediate transition period, an increasing proportion of the fund's work has been concerned with problems of postwar reconstruction. Its published reports included in 1945 a symposium by six leading economists on postwar fiscal and financial problems, a survey of trends in collective bargaining, and two reports in a popular series: on pressure groups in America and on foreign trade prospects after the war.

Current major research projects include a survey of America's postwar needs and resources, a study of the foreign trade relations of the United States, and two related surveys, one on trends toward monopoly in domestic business and the other on cartel arrangements in international trade.

The fund's research findings, together with recommendations for public policy by especially appointed committees of representative citizens, are published in book form and given further dissemination through the press, radio, motion pictures, and popular pamphlets.

The officers of the fund are: John H. Fahey, president; Henry S. Dennison, chairman, executive committee; Morris E. Leeds, treasurer; Evans Clark, executive director; J. Frederic Dewhurst, economist. Address: 330 West 42nd Street, New York 18, New York.

LOUISE FIELD,
The Twentieth Century Fund.

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UBANGI SHARI, o͞oban-gē' shä'rē. See FRENCH EQUATORIAL AFRICA.

UGANDA PROTECTORATE. See BRITISH EAST AFRICA.

UKRAINIAN SOVIET SOCIALIST REPUBLIC. See UNION OF SOVIET SOCIALIST REPUBLICS.

UNEMPLOYMENT. See LABOR CONDITIONS IN THE UNITED STATES.

UNION OF SOUTH AFRICA. See SOUTH AFRICA, UNION OF.

UNION OF SOVIET SOCIALIST REPUBLICS (USSR). Territory and Political Divisions.—The Union of Soviet Socialist Republics (USSR) is a federation consisting of 16 republics. Before 1917 most of its territory was part of the Russian Empire, proclaimed by Czar Peter I in October 1721. In 1917, Nicholas II, the last czar, abdicated as a result of the March revolution. A provisional government was established, which in turn was overthrown in November 1917 (October by the old Russian calendar). The second, or October Revolution, ushered in the Soviet regime. In June 1918 there was adopted the first Soviet constitution, that of the Russian Soviet Federated Socialist Republic (RSFSR). After three years of destructive civil war and foreign armed intervention the Soviet regime was victorious. In 1923 four Soviet republics—the RSFSR, the Belorussian SSR, the Ukrainian SSR, and the Transcaucasian Federation—united to form the USSR. Later five Central Asiatic republics emerged from the RSFSR; the Transcaucasian Federation broke up into three republics; and five more republics were formed on the western border of the USSR. Thus, the Union now consists of 16 republics. These republics with their capitals are as follows:

RSFSR	(Moscow)
Ukrainian SSR	(Kiev)
Belorussian SSR	(Minsk)
Azerbaidzhan SSR	(Baku)
Georgian SSR	(Tbilisi)
Armenian SSR	(Erivan)
Turkmen SSR	(Ashkhabad)
Uzbek SSR	(Tashkent)
Tadzhik SSR	(Stalinabad)
Kazak SSR	(Alma Ata)
Kirghiz SSR	(Frunze)
Karelo-Finnish SSR	(Petrozavodsk)
Lithuanian SSR	(Vilnius)
Latvian SSR	(Riga)
Estonian SSR	(Tallinn)
Moldavian SSR	(Kishinev)

These 16 republics, known as Union republics, are sovereign states. Their right to secede from the Union is guaranteed by the Union Constitution; in February 1944 they also obtained the right to have their own armies and establish direct relations with other states. Prior to February 1944 defense and foreign relations were exclusively the province of the Union government.

Within the Union republics there may be further subdivisions, such as: autonomous Soviet Socialist republics, autonomous regions, and national districts. The largest Union republic, the Russian (RSFSR), is itself a federation, containing several of the above-mentioned subdivisions. As a result of the victorious termination of the Second World War, the territory of the USSR has expanded. In the west, parts of what used to be East Prussia have been added to the Lithuanian SSR. The city of Königsberg and the area surrounding it became part of the RSFSR, although separated from the rest of the territory of that Union republic. In the Carpathian Mountains, so-called Carpatho-Russia or Carpatho-Ukraine (see RUTHENIA) has become part of the Ukrainian SSR. This area formerly belonged to Czechoslovakia. It was joined to the USSR, according to the wish expressed by the population of that area, by the treaty concluded between the USSR and Czechoslovakia (signed June 29, 1945). In the Far East, as a result of the victory over Japan in August 1945, the USSR reannexed the Kurile Islands, which belonged to Japan from 1875 to 1945, as well as the southern half of the island of Sakhalin, lost by Russia to Japan in 1905. In the north the Petsamo area was added to the RSFSR as a result of the armistice with Finland in September 1944; and in the Far East, Tannu Tuva has joined the same republic as an autonomous region.

The RSFSR has a population of over 100,000,000, of which over 70 per cent is Russian. In the other Union republics the Russians constitute a minority. At the time of the Hitler invasion the population of the USSR was estimated to equal approximately 200,000,000, and the total area was 8,337,740 square miles. At the time this is written no total figures on population changes are as yet available. In the first three years of war the Red Army lost 5,300,000 men (killed, prisoners, and missing). The losses among the civilian population are considered by most observers to be much higher.

Geography and Natural Resources.—Topographically the USSR may be divided into seven zones. Along the Arctic Ocean lies the frigid zone or tundra, where winter lasts eight months and only a thin layer of the earth's surface thaws during the summer. Next comes the forest zone, covering about one half of the entire country and containing about one third of the world's lumber supply. Moscow lies just south of this zone, where the soil is known as podzol. Farther south the forest grows thinner and the third zone has forest mixed with steppe. Black-earth soil, famous for its fertility, begins with the forest-steppe zone and extends into the fourth zone, that of the steppe. The steppe zone stretches from the Carpathian Mountains in Europe to the Altai range on the borders of China. In the southern part of the steppe zone the soil becomes light brown and less suitable for agriculture. The fifth zone is semidesert, and the sixth, desert. The deserts are either sand or clay; large sand deserts are found in Central Asia. The last zone, the seventh, is subtropical and is located in Central Asia and south of the Caucasus Mountains.

Both vegetation and animal life vary from zone to zone, as one moves from the Arctic toward the borders of India. The farther inland, the more marked become the continental characteristics of the climate, with long cold winters and short hot summers. The pole of frigidity lies in northeastern Siberia, where the annual variation in temperature is greater than anywhere in the world (from + 91.4°F. to −94°F.). The heaviest precipitation is found on the Pacific coast and in the Transcaucasus region.

In the European part of the USSR flows the Volga, the longest river in Europe. The Volga, Don, and Dnieper flow south, the Western and Northern Dvina, north. Since these rivers and several of their tributaries start in the center of

European Russia, they lend themselves to being connected by canals. In Siberia the several great rivers (Ob,. Yenisei, Lena) flow north into the Arctic, except the Amur, which flows into the Pacific. These rivers provide natural routes of transportation. The world's largest inland sea, the Caspian, is mostly in the USSR, and Lake Baikal in Siberia is the deepest lake in the world.

The general land structure has a resemblance to that of the United States, but the relationship of plains and mountains is reversed in the USSR, where the north and west parts are flat and the east and south, mountainous. In the Crimea the elevation is 5,062 feet above sea level; the Caucasus Mountains, the highest in Europe, rise to 18,468 feet. The highest elevation in the USSR is in Central Asia, in the Tien Shan range (22,940 feet) and the Pamirs (24,590 feet). The Ural Mountains (highest elevation, 6,151 feet) bisect the great Soviet plain. The highest active volcano in the Old World (15,912 feet) is found in Kamchatka.

In mineral and vegetable resources the Soviet Union is one of the richest countries in the world. New deposits are continually being discovered. Between the two world wars the prospected deposits of coal and petroleum increased sevenfold, of lead ninefold, of zinc tenfold, of copper 28-fold. About three years ago diamonds were discovered in the Urals, an area which up to that time had yielded a variety of other minerals, but not diamonds. The coal deposits of the USSR are estimated at one fifth of the known coal deposits of the world; the Kuznetsk basin in western Siberia alone contains two and a half times more coal than the coal fields of Great Britain. The USSR possesses around 55 per cent of all "proved deposits" of petroleum in the world. Large iron deposits are located in the Ukraine, the Urals, eastern Siberia, and the Crimea. In the Urals there is a whole mountain of iron ore, near which Magnitogorsk is now located, with its iron and steel foundries. The USSR has deposits of zinc, lead, platinum, silver, gold, tin, nickel, molybdenum, wolfram, sulphur, bauxite, graphite, mercury, uranium, and many other minerals. Probably the largest deposits of peat are found in the USSR. There also exist vast deposits of so-called "agricultural ores" and salt.

The agricultural region of the USSR stretches for over 3,000 miles. As the irrigation projects develop in the southern areas, the Soviet Union is likely to become an increasingly important cotton producer. With approximately 2,500,000,000 acres of forest land, the potentialities of lumber production are very great. The USSR is already a large fur producer, and fishing and crabbing are important, particularly on the Pacific coast. The power capacity of the rivers and streams is estimated to equal slightly less than one third of the potential water power capacity of the world.

Economic System.—As a result of the October Revolution of 1917 the economic system of the USSR is markedly different from that of any other country. It is a socialist system of economy in which private ownership of the means and instruments of production (including all land and natural resources) has been abrogated. Socialist property exists either as state property (possession of the whole people) or as co-operatively or collectively held property (possession of a collective farm or of a co-operative association). Small private economy is permitted, provided it the exploitation of the labor of others, and the constitution guarantees the right to personal property and inheritance of such. Work is both a duty for all able-bodied citizens and a right guaranteed to them by the constitution, which states: "He who does not work, neither shall he eat."

The motto of this socialist economy is: "From each according to his ability, to each according to his work." In a Communist society, the motto would be: "From each according to his ability, to each according to his needs." Since the Soviet economy does not produce in sufficient quantities for distribution "according to need," there is no communism yet, although the stated goal of the Communist Party and the Soviet state is to achieve such an end in time. Soviet leadership regards the socialism of today as the first step toward a Communist economy of the future.

Throughout the Soviet Union there exists a great variety of languages, local customs, and traditions. It is emphasized that each nationality or national group should, if it so desires, develop its own national forms. There thus exists a great diversity in forms, particularly as to language and cultural manifestations, while the economic content is made uniform by the fact that the economic life of the country as a whole is determined and directed by the state national plan. Hence, to express this combination of variety and uniformity, Soviet culture is referred to in the USSR as "national in form, but socialist in content."

Since people are recompensed in "accordance with their work" and since the quality of work differs, there are considerable variations in wages and salaries, depending on the skill of the individual and the amount of socially useful work performed. In the USSR production and distribution, capital accumulation and investments are all planned and conducted through the mechanism of the state. Thus the role of the state is not only quantitatively greater, but qualitatively different, as compared with other countries. In a planned economy, like that of the USSR, there does not exist what is known in economics as "the open market," or "the law of supply and demand." Production, distribution and prices are the result of a planning process. The Soviet Union has no unemployment and no periodic fluctuation in economic activity or crisis. One of the best indicators from which one can appraise the operations of the Soviet economy is the annual state budget, which includes items reflecting the majority of economic operations of the country.

The population consists of two harmonious socio-economic classes and one stratum. There is the working class, in which workers on soviet farms (*sovkhoz*) are included, operating with plant, tools, and equipment owned by the state. There is the peasantry, now predominantly collective farmers, who are co-operative owners of their collective farm property, but rent most of the machinery they use from the state. There are the professional workers, servicing the two classes, who are regarded as a stratum, but not a class, because of the absence of an independent economic base. The proclaimed goal of the Soviet regime is to achieve a classless society.

These basic economic characteristics and aims of the Soviet regime which had been laid down long before the Second World War, have not changed in the course of the war, and are, in the opinion of this writer, established in the So-

Government.—The highest authority in the land is the Supreme Soviet of the USSR. It consists of two houses with equal rights: the Soviet of the Union and the Soviet of Nationalities. Both houses are elected by universal, direct, equal and secret ballot. The Soviet of the Union is elected according to election areas on the basis of one deputy for every 300,000 of the population; the Soviet of Nationalities is elected on the basis of 25 deputies from every Union republic, 11 from every autonomous republic, 5 from every autonomous region, and 1 from every national district. After the adoption of the Constitution of 1936 the first general election was held in December 1937, with 91,000,000 people voting, or 96.8 per cent of all eligible voters. Numerous other bodies are also elective. In the local elections held in December 1939, 93,000,000 voters participated, electing 1,286,734 candidates, of which number 422,362 were women, to various offices. In this election over 6,000,000 citizens worked on the election boards.

Normally, the Supreme Soviet is elected for a term of four years and holds sessions twice a year, although it may also convene in special sessions. The term of the first Supreme Soviet, which held its 12th session in June 1945, was extended on account of the war. The second general election was scheduled for February 1946.

The Supreme Soviet elects a presidium, which is constantly in session. The chairman of this presidium performs the duties of titular head of the state. Hence, he is sometimes incorrectly referred to as "president" of the USSR. At the time of writing, this office is held by Mikhail I. Kalinin.

The Council of People's Commissars is appointed by the Supreme Soviet and is responsible to it. This council, or cabinet, is larger than similar bodies in other countries, since it includes people's commissars in charge of various branches of industry. The Supreme Soviet also selects the Supreme Court of the USSR for a term of five years. Lower courts have citizen judges chosen from panels, like an American grand jury.

In the USSR both the executive and the judiciary branches of the government stem from the legislative, as under the parliamentary system of European countries, and unlike that of the United States, with its system of checks and balances. Each of the 16 Union republics has its own Supreme Soviet, Council of People's Commissars, judiciary, etc.

The only political party in the USSR is the All-Union Communist Party (Bolsheviks). In the Supreme Soviet elected in 1937, of all the deputies 70 per cent were party members and 30 per cent had no party affiliation. By the end of 1943 the Communist Party had 4,600,000 members and candidates. More recent reports in the Soviet press (May 1945) place its total numbers at 5,800,000. The Communist Party is regarded in the USSR as the vanguard of the toilers and embraces the most politically conscious and active people, be they in offices, factories, on the farms, or in the armed forces. In local elective bodies such as city and village soviets (councils) Communist Party members are apt to be in a minority.

Another unusual feature of Soviet political life is the fact that in the 1937 election, at least, practically all districts ran only one candidate. Although the constitution in no way limits the number of candidates, in practice the contest appears to have developed over nomination of candidates, with contestants withdrawing when the nomination of someone by the majority of organized bodies of citizens in the locality seemed assured. Whether this practice of concentrating the local struggles around nominations, but having the elections uncontested, will persist is impossible to say.

A third special feature is found in the fact that important measures are often signed by both government and party representatives. During the Second World War the government and the party created a defense council, a body smaller than the Council of People's Commissars, which acted as the highest executive authority. In May 1941, Joseph V. Stalin, for many years secretary of the Communist Party, became chairman of the Council of People's Commissars (prime minister), and after the USSR was invaded, also assumed chairmanship of the new defense council.

In the Communist Party the highest authority is vested in the party congress. The last such congress (the 18th) was held in the spring of 1939. The congress elects a central committee, several bureaus, and a secretariat, which function between congresses. In case of urgent problems, nationwide conferences of all leading party members are held, as was the case early in 1941.

The present Union Constitution was adopted in 1936, superseding the earlier document of 1923, adopted when the Union was formed. The constitutions of the Union republics have been revised to conform to the Union Constitution of 1936, whose general pattern they follow.

Population.—At the time of the latest census (January 1939) the population of the USSR was 170,000,000. The addition of five Union republics in the west added about 23,000,000. At the time of the Hitler invasion (June 22, 1941) the total population of the Union was estimated to have been in the vicinity of 200,000,000 people.

The natural increase of the population in prerevolutionary Russia was one of the highest in Europe, but so was the death rate, particularly infant mortality. The Soviet public health service, in which preventive medicine and child care play a very important part, together with the expansion of medical care in general, which in the USSR is a free public service, have lowered the mortality rate. From 1926 to 1939 (two census years) the average annual increase of the population was 12.3 per thousand. What the total population loss has been in the war, is as yet impossible to say. It may have been 10,000,000 and it may have been a considerably higher figure. Most authorities seem to agree that the Soviet population will grow at the old rapid rate of about double that of the rest of Europe, exclusive of the Balkans. The absence of figures on war losses precludes any estimates as to how long it may take to fill the gap produced by the war.

Between the censuses of 1926 and 1939 there was a marked shift of population from rural to urban. The natural increase in the rural population between the censuses was 18,200,000, but 24,400,000 migrated to the cities, leaving a net decrease in the countryside of 6,200,000. In 1926 there were 33 cities with over 100,000 inhabitants; in 1939 there were 82 such cities. In 1926 there were three cities with a population of over 500,000; in 1939 there were 11 such cities. At the time of the German invasion the USSR was about one-third urban, while at the turn of the century the country was about one-tenth urban.

At the time of the latest census slightly less than 100,000,000 people were listed as Russians, or 58.4 per cent of the total. The Ukrainians formed 16.6 per cent; eight other nationalities accounted for between 10 and 1 per cent each. The addition of other non-Russian peoples in the five Union republics that joined in 1940 and the inclusion in the Union of western Ukraine and Belorussia in the autumn of 1939 further increased the non-Russian population. At the present time it is estimated by some that the Russians form less than 50 per cent of the total, but this question can be answered only at some future date by the results of the next census.

In the course of the war great numbers of people migrated east. In the Urals, in central Asia and in Siberia the population of many cities must have more than doubled. It is too early to say whether this shift is going to be permanent and it is impossible to estimate even approximately its extent. The only thing that can be said is that the war has changed the population distribution probably in a very marked fashion. As to the extent and duration of this change, again only the next census will provide an answer.

Industry.—Before the revolution, Russian industry was not developed to correspond to the country's natural resources. In 1913 Russia produced industrially about one fifteenth of what the United States produced then; in 1937 Soviet industrial production amounted to about one third of America's. The devastation brought about during the First World War (1914–17) and the civil war (1918–21) set the country back very considerably. Only in 1926 did both the national income and industrial production exceed the 1913 level. A rapid expansion of production soon followed, reaching by 1940 an approximate elevenfold increase over 1926.

This expansion was achieved through a succession of five-year plans. The first (1928–32) created a heavy industry base through the development of iron and steel production and of new industrial bases in the east; large-scale production of agricultural machinery was also initiated. The Second Five-Year Plan (1933–37) continued the expansion of basic iron and steel production, but also laid more stress on consumers' goods and emphasized the production of motors and electrical appliances. The Third Five-Year Plan, scheduled for completion in 1942, but interrupted by the war, laid particular stress on the development of new fuel and power centers and on the expansion of the chemical industry. In the course of the five-year plans, the country, previously predominantly agricultural, became industrialized. The number of workers and employees rose from 17 per cent of the entire population in 1928 to 35 per cent in 1937. Membership in the Soviet trade unions before the war stood at over 25,000,000, a higher figure than the membership of the AFL, the CIO, and the British trade unions combined.

After 1937 very little was published on the further expansion of Soviet industry. The German General Staff very clearly under-estimated the progress being made by industry in the Urals and points farther east from 1937 to 1941, and seems to have altogether failed to anticipate the fact that much of Soviet industry would be evacuated east as the Germans advanced into the country. So far there has not been published any data on wartime Soviet production. One knows that industrial plants, equipment and workers were evacuated to the Urals, Siberia, and Central Asia on an unprecedented scale in 1941 and 1942. Toward the end of 1942 the Soviet armies struck back at the invaders at Stalingrad with much new equipment. The lend-lease aid was at that time quite insignificant. It was Soviet industry that provided the tools with which this battle, the second strategic turning point of the war (the Battle of Moscow in 1941 being the first), was won.

In the course of the war most of the production of Soviet industry was devoted to manufacturing for military needs, with the output of consumers' goods reduced to a minimum. In a great many instances the production of articles of consumption apparently ceased altogether. The devastation brought about by the invasion was very great; 31,850 industrial enterprises that employed approximately 4,000,000 individuals, were destroyed or damaged. Rebuilding began as soon as the territories were liberated from the enemy. A very lengthy decree on reconstruction measures was issued in August 1943. Allotments of funds for new capital investments amounted to 29,000,000,000 rubles[1] for 1944 and 40,100,000,000 rubles for 1945. Nearly half of the 1945 allotment was intended for reconstruction work. In this connection it may be interesting to note that the figure for 1945 begins to approach the figure for 1941 when the allotment of funds for new capital investments was 57,000,000,000 rubles.

On Aug. 19, 1945, the Council of People's Commissars and the Central Committee of the Communist Party gave instructions for a new five-year plan to be drawn up, to run from 1946 to 1950. At the time this is written, no details are as yet available. When the newly elected Supreme Soviet assembles in 1946 more information may appear in print. From statements of Soviet leaders it appears that by the end of this new five-year plan it is intended to repair the damages inflicted by the war and to obtain a higher level of production than in 1941. Prior to the war the Soviet Union was devoting a good deal of attention to a 15-year plan, of which the Third Five-Year Plan was but a part, to extend into the 1950's. It was then anticipated that by the end of this plan, that is, some time in the 1950's, the USSR would catch up with the advanced industrial countries of the West in the per capita output along most lines of production. All this was, of course, shelved by the war. Now the Soviet Union intends to resume the old trend of growth.

Agriculture.—Soviet agriculture is organized along a pattern that does not exist anywhere else. The October Revolution (1917) abolished private ownership of land, both rural and urban, and did away with large nobility landholdings. However, in 1927 the Soviet Union had over 24,000,000 individual peasant households, cultivating the land by very primitive methods. The profound change came with the First Five-Year Plan, when agriculture was collectivized.

The bulk of the peasantry was organized in

[1] The gold content of the Soviet ruble is set at 11.948 grains of fine gold and that of the United States dollar at 13.714 grains of fine gold (15 21/31 grains, nine tenths fine). Thus according to their respective gold contents the ruble can be said to be worth about 87 cents in United States money. But the fixed metallic content of the ruble is of less importance than its role as a unit of accounts for internal use only, which is not sold, bought or quoted abroad. It is, therefore, hard to express ruble values in dollars. There exists a purely artificial rate of exchange, set several years before the Second World War, of approximately 5 rubles to the dollar, at which rubles are sold to those visiting the USSR with dollars.

collective farms (*kolkhoz*). These farms are cooperative enterprises enjoying a permanent use of the land (not ownership). The members own jointly the farm facilities, except for most of the mechanical equipment, which is rented by the collective farms from state-owned machine and tractor stations (M.T.S.). There also exist state farms (*sovkhoz*) or agricultural factories operated directly by the state. In 1938 there existed 242,400 collective farms, 6,358 machine and tractor stations, and 3,961 state farms. In the course of the German Fascist invasion, 98,000 collective farms were sacked and looted. The number of villages burned and destroyed exceeded 70,000. The invaders slaughtered or shipped to Germany 7,000,000 horses, 17,000,000 heads of cattle, tens of millions of pigs and sheep, and consumed poultry in numbers that are even difficult to estimate.

Collectivization of farming, with the resulting mechanization of agriculture, raised the standard of living of the countryside, and allowed more people to leave for the city for work in industry. The average annual grain production for the entire country in the five years 1933–37 was 40 per cent higher than the corresponding figure for the period 1910–14, and the average yield per unit of land increased by 25 per cent in the later period over the earlier.

While there are as yet no figures on the wartime performance of Soviet agriculture, it is clear that in spite of all the devastation and food difficulties arising from it, the USSR did escape a famine. All Soviet authorities attribute this to both the superior organization and the higher productivity of the collective farm system of agriculture. Women and children carried the main burden of agricultural work during the war and the countryside managed to feed the army and the cities; in spite of all the shortages a general famine was averted. The most immediate task now confronting Soviet agriculture is the rebuilding of tens of thousands of villages, re-equipping the collective farms and replenishing the stock of horses, cattle, pigs, sheep, and poultry. Some livestock had been driven east to safety as the Germans advanced. On Jan. 16, 1945, it was announced that a million head of cattle, sheep, and goats, which had started west to the liberated areas in May 1944, had finally reached their destination. On Nov. 16, 1944, it was reported that for the first time since the war started, it had been possible to sow winter crops throughout the country; the area sown by that time exceeded the 1943 total by 12,350,000 acres.

Transportation.—The railroad system of the USSR is still far from adequate. In 1937 there existed 53,000 miles of railroads, four times less than in the United States, although the territory of the USSR is much greater. In spite of that, the freight turnover is very considerable; the Soviet railroads carried before the war an annual load per mile more than twice as great as the roads in the United States. In recent years several new roads were constructed, but no adequate statistical data on the activities of the war years are as yet obtainable. On Aug. 1, 1945, it was officially reported that more than 31,000 miles of strategic railroads were restored during the war. Owing to the scarcity of other good roads, the railroad lines in the USSR are of particular importance, especially as mud makes the dirt roads very difficult to use in spring and fall. It is, therefore, fair to assume, and Soviet official utterances confirm that assumption, that extensive railroad construction may develop in the USSR in the near future.

Inland waterways play an important role in the USSR. The White Sea and the Baltic are now united by canals. The Volga-Moscow canal, completed in 1937, has made Moscow a port. Although the building of canals was initiated at the beginning of the last century, large-scale construction began only in the last decade before the Second World War. Further canal building and more intensive utilization of the great rivers, particularly in Siberia, are likely to make river transportation even more important.

The immense distances have prompted the USSR to concentrate on the production of motor trucks. In the late 1930's the Soviet Union was already the second largest truck producer in the world, second only to the United States. Great stress is also laid on aviation, since many areas inside the Union are still easily accessible only by air. In its immediate postwar production Soviet industry is, therefore, apt to stress the acceleration of automobile and airplane manufacturing. On Oct. 7, 1944, it was officially announced that the government now operates a large network of civil airlines in the Soviet Far East.

Foreign Trade.—Since April 1918 foreign trade has been a government monopoly. All goods and payments going in or out of the country pass through this one agency. Soviet foreign trade had not, prior to the Second World War, reached the dimensions of Russia's foreign trade before the revolution. This was accounted for partly by political reasons and difficulties in obtaining the usual credit accommodations abroad. But also the USSR did not have the same compulsion to export as pre-revolutionary Russia, which was a debtor country and had to meet the services on her debts abroad largely through grain exports.

Foreign trade increased sharply at the time of the First Five-Year Plan when the USSR imported a lot of machinery and had to export unexpectedly large quantities of goods abroad, because of the collapse of commodity prices outside the USSR in the economic crisis of the early 1930's. In the course of the Second World War, Soviet foreign trade rose to unprecedented heights, largely owing to large quantities of equipment shipped to the USSR from the United States and England, as part of Allied aid to the Soviet Union in its war efforts. The total value of so-called lend-lease material sent to the USSR from the United States by April 1, 1945, was $8,409,695,000. On June 26, 1945, the United States Department of Commerce reported that for the preceding year all American exports to the USSR, including lend-lease, amounted to $3,459,008,000. With the end of the war, shipment of goods on a lend-lease basis was terminated.

As a rule, the USSR sells abroad, gets paid in the currencies of the purchasers of the goods, and uses the balances thus obtained abroad for its own purchases. The ruble is a purely internal currency, which is not quoted abroad; in its foreign trade transactions the Soviet state deals only in foreign currencies or in gold.

American-Soviet trade reached 15 years ago its prewar peak of $130,000,000. Soviet imports to the United States were never large, one of the main items being furs. From the United States the USSR purchased mostly machine tools and other highly specialized items. Soviet purchases in the United States exceeded Soviet im-

ports, and payments for these purchases were made largely through transfer of funds from other countries or in gold. Future American-Soviet trade possibilities depend largely on the availability of American credits and the expansion of Soviet imports to the United States. While this is being written, negotiations on these points seem to be at a standstill for political reasons.

Finance and Reconstruction.—Unlike most other countries, the USSR has no privately owned banking institutions. The central bank, the State Bank of the USSR (Gosbank) is also a commercial institution with a large network of branches. There also exist special banks with branch networks of their own for the financing of long-term needs of industry, for the financing of agriculture, co-operative enterprises and municipal construction. Prior to the war there were also 41,000 savings bank offices. There is no mortgage banking and neither industry nor agriculture has any outstanding bonded indebtedness. The Soviet state budget, as already stated, includes budgets of all publicly owned enterprises, that is, industry, mining, transportation, etc. Investments are a government function. The First Five-Year Plan carried an investment figure of 51,000,000,000 rubles, the Second, 115,000,000,000 rubles, and in the Third Plan 181,000,000,000 rubles were scheduled to be invested. Revenue is derived from taxation, income from government-owned enterprises and public borrowing. For many years the Soviet state budget was balanced annually and remained balanced through the war.

The 1944 budget was set at 249,600,000,000 rubles. In the course of that year receipts equalled 268,000,000,000 rubles, or 107.4 per cent of the budgetary estimate, and expenditures were 263,000,000,000 rubles, or 105.4 per cent of the budgetary estimate. The budget for 1945 was set at 305,300,000,000 rubles, of which 137,900,000,000 rubles, or 45.1 per cent, were to be devoted to the financing of the war.

Up to the end of 1944 the war had cost the Soviet Union 420,000,000,000 rubles, according to the Commissariat of Finance, and a Soviet state commission investigating the damages brought about by the invasion gives the figure of 679,000,000,000 rubles as an estimate of the direct loss suffered by the national economy and citizens during the war. Losses in industry and agriculture have already been mentioned. In addition, 1,710 cities have been wholly or in part destroyed. In the cities and country more than 6,000,000 dwellings were destroyed, leaving about 25,000,000 people homeless. Enormous damage was inflicted on the railroad system and its rolling stock.

As was indicated earlier, reconstruction began long before the end of the war. By the end of 1944 considerable production was yielded by the industry of the liberated areas and in agriculture more than 2,000 machine and tractor stations had resumed their work in areas that were overrun by the enemy. In 1943 the expenditures for social and cultural needs (including health, education, and social services) were 37,700,000,000 rubles; in 1944 they rose to 51,000,000,000 rubles; and the 1945 budget carries an item of 66,100,000,000 rubles.

The Soviet Union financed the war largely on a pay-as-you-go basis, relying more on current receipts, than on borrowings. The total internal indebtedness of the Soviet government does not appear to be listed in any one source; at least, this writer has not located such a listing. But the various internal loans are widely publicized. On May 5, 1945, the campaign for the Fourth State War Loan of 25,000,000,000 rubles opened; by May 13 it had been oversubscribed by 1,384,685,000 rubles. If one adds up these loans from the years before the First Five-Year Plan to the close of 1945, one obtains a figure of not more than 150,000,000,000 rubles. In other words, the internal indebtedness at the end of 1945 equals only about half the budget for 1945. Compared with other countries, the USSR comes out of this war with a very small internal debt and also a correspondingly insignificant burden of servicing this debt in the future.

No figures are as yet available on currency circulation. It is therefore impossible to say whether the currency is overexpanded or not. During the war most goods were strictly rationed and most articles of consumption, beyond the bare necessities, were very hard to obtain. Under the Soviet system more effective rationing and price control is feasible than anywhere else. On two occasions (Nov. 5, 1944, and Aug. 21, 1945), announcements were made of rather extensive price reductions on broad categories of goods, both rationed and unrationed. It appears that having suffered tremendous destruction and great loss of manpower, the USSR has emerged from the Second World War in an internally most sound and solvent financial condition. The method of financing the war out of current receipts and savings, must have added considerably to the hardships, but resulted in a very favorable budgetary situation.

Education.—For centuries the country was largely illiterate and only in the last few decades remarkable progress has been achieved in eliminating illiteracy and raising the educational level. The census of 1897 showed that only 30 per cent of the population could sign their first and last names; but the census of 1939 showed that 81.2 per cent of the population could read and write. As late as the early 1930's there were still millions of adults learning to read and write, but by the outbreak of the Second World War the USSR was approaching the abolition of illiteracy.

The school system has expanded many-fold. In 1938–39 four times as many individuals attended school as in 1914–15. In 1914 there were 91 institutions of higher learning located in 16 cities; in 1939 there were 708 such institutions located in 154 cities. Prior to the war the annual number of graduates from institutions of higher learning exceeded 100,000, and the total college population of the USSR exceeded that of England, France, Germany, Italy, and Japan combined, being still second only to that of the United States.

Secondary education is provided by the 10-year school, which exists in all cities. The countryside is still predominantly served by the 7-year school. It was intended to raise all secondary education to the 10-year school level by 1942, but the war interfered. In Soviet schools the curriculum is much more rigidly prescribed, after the European pattern, than in American schools, and pupils are passed from grade to grade on the basis of examinations. The educational system tends to use standardized texts, prepared by committees of educators and published in millions of copies. The Soviet curriculum also differs from the American in that greater stress is put on geography, history, and literature. The latter is regarded and taught as a social science.

In the course of the war, tuition was introduced in institutions of higher learning and the sexes were separated in secondary schools. The last measure was motivated by the conclusion reached by Soviet educators that boys and girls show a difference in the rate of progress in school. Younger girls appear to be studying better than boys, while older boys show more rapid progress than girls of the same age; hence, the separation of sexes in secondary schools, while coeducation remains in the primary and higher schools. Soviet primary schools started the academic year 1944–45 with 10,500,000 pupils, an increase of 3,500,000 over the previous year.

During the war the schools participated in production and particularly in the gathering of the harvest. In the war years 290,000 specialists were graduated from institutions of higher learning, and 52 new institutions of this type were opened. At the present time (autumn of 1945) the USSR has 772 higher educational institutions with 562,000 students, over 40,000 of whom had just left the army. In March 1945 it was announced that 217 women had been appointed as university professors during the past year. The outstanding event in the cultural field in 1945 was the celebration of the 220th anniversary of the Academy of Sciences of the USSR at a Jubilee Session held by the academy in June, which was attended by scientists from 17 foreign countries, including the United States.

The general rise in the cultural level for the last few decades is best illustrated by the book publishing field. In 1913 there appeared 26,200 titles, as against 40,000 in 1938. A more striking difference, however, appears in the number of copies: 86,700,000 in 1913, as against 692,700,000 in 1938. During the war publications had to be curtailed in view of the paper shortage, but the State Publishing House announced recently that while the war lasted it published 57,000 titles of books and pamphlets with a circulation of 1,000,000,000 copies. Among them were the works of the poet, V. Mayakovski, published in 47 languages, those of Alexei Tolstoy in 38 languages, and of M. Sholokhov in 41 languages. This illustrates one unique feature of both Soviet education and publishing: being a multinational country, the USSR provides instruction and reading material in a great many languages other than Russian.

Religion.—In the USSR the largest body of organized believers is found in the Russian Orthodox Church. Before the outbreak of the Second World War there were approximately 30,000 religious associations (parishes, etc.) of all kinds, with over 8,000 licensed places of worship, about half of which were of the Russian Orthodox Church. There were also over 50,000 individuals practicing religion as a profession.

At the present time there exist two government commissions dealing with matters of religion. One is the Soviet Council on Russian Orthodox Affairs; the other, the Soviet Council of Affairs of Religious Cults, handles issues involving all other faiths. Among several nationalities of the East there are numerous adherents of Mohammedanism and Buddhism. The Roman Catholic Church has a following in the West, in the Lithuanian and Belorussian republics. Among the many religious bodies that have split off from the Russian Orthodox Church, the most numerous are the Old Believers, dating back to the 17th century, and the Renovated Russian Orthodox Church, which arose in the 1920's. There also exist various Protestant denominations and sects, among whom the Baptists appear to be the most numerous. A Moscow conference of parish delegates in October 1944 organized a United Association of Evangelical Christians and Baptists.

Up to the fall of the monarchy in 1917 the Russian Orthodox Church was the official state church. First under the authority of the patriarch of Constantinople, the Russian Church became altogether independent from its Greek mother church with the election of the first Russian patriarch in 1589. Czar Peter the Great discontinued the patriarchate, establishing in 1721 a council of bishops (the Holy Synod), with a layman appointed by the czar acting as its procurator, thus making the church virtually a subordinate part of the state apparatus. After 1917 the church was separated from the state, and the school system from the church. A new patriarch was elected, but after his death in 1925 no successor was chosen. For several years the church was in active opposition to the Soviet regime, with a vigorous struggle going on between church and government. In 1927 some preliminary steps were taken to suspend active hostilities. When the USSR was invaded in June 1941, the Russian Orthodox Church came out at once in support of the government. During the war the church contributed large sums of money, raised from among its parishioners, to the defense of the fatherland. Several church officials were decorated by the government for their services. In 1943 a new patriarch was elected. The death of Patriarch Sergei in May 1944 necessitated a new congress of bishops, clergy, and laymen (a *sobor*) early in 1945. This assembly in Moscow was attended by representatives of practically all Eastern churches. Although officially it was not a world congress of the Orthodox faith, actually it came very close to being one. The new patriarch, Alexei, was elected on Feb. 2, 1945, and there followed visits by Russian divines to the various friendly churches outside the USSR. In western Europe several Russian dioceses returned to the jurisdiction of the Russian patriarch. The same process took place in the Far East, after the defeat of Japan. In both instances relations severed soon after the revolution were resumed. At the present time only a group of Russian churchmen in Switzerland, who collaborated with the Germans, and most of the Russian churches in the United States, remain outside the fold of the mother church. At the time this is written negotiations are in progress for the resumption of relations between the Russian Church in the United States and the Moscow patriarchate, whose representative, Alexei, archbishop of Yaroslavl and Rostov, arrived in New York in September 1945.

In June 1945 the Armenian Church held a world congress at Echmiadzin in Soviet Armenia and elected a new supreme Patriarch and Catholicos of all Armenians. There were similar gatherings of other faiths. In each case the government was represented by someone specializing on religious affairs, who delivered a greeting and then withdrew. Thus, although new, cordial relations between church and state were established during the war against Hitlerite Germany, the basic principles laid down in the Soviet Constitution remain unaffected: church is separated from state, and all state schools remain strictly secular; religious belief and worship remain entirely private matters; religious believers and officials are, like all other citizens, eligible to vote and be elected to any

government office. Fundamental differences between the religious bodies and the Communist Party also remain unchanged; believers still find it impossible to accept the basic philosophic premise of the Communist Party, that of dialectical materialism, which precludes a belief in the supernatural.

Recent expansion in church activities has included the opening by the Russian Orthodox Church of a Theological Academy in Moscow and several schools where individuals aged 18 or over, who are graduates of Soviet secondary schools, may be trained for the priesthood. Whether this revival of church activity is accompanied by an increase in church membership is impossible to say, in view of the absence of adequate statistical data. The change that has taken place in the attitude of the Soviet government was motivated, one may presume, largely by the patriotic services rendered by the church from the first days of the war to its victorious conclusion.

Some Internal Events.—On July 8, 1944, the Presidium of the Supreme Soviet of the USSR issued a decree increasing state aid to expectant mothers and strengthening protection of motherhood and childhood. On Dec. 21, 1944, Lazar M. Kaganovich, commissar of transportation, was raised to vice chairman of the Council of People's Commissars (vice premier). On June 23, 1945, the 12th session of the Supreme Soviet ordered the demobilization of the 13 oldest age groups in the Red Army.

Among prominent Soviet citizens who died during this period were the following: Aleksei Tolstoy, noted writer (Feb. 23, 1945); Marshal Boris Shaposhnikov, former chief of the Red Army General Staff (March 26, 1945); Col. Gen. Alexander S. Shcherbakov, member of the Communist Party Political Bureau, secretary of the Central Committee of the party, chief of the Red Army's Political Department, and head of the Soviet Information Bureau (May 10, 1945); Alexander Fersman, noted geologist (May 20, 1945); Demyan Bedny, poet and playwright (May 25, 1945); Dzhambul Dzhambov, Kazak folk bard (June 22, 1945); Lieut. Gen. Boris G. Galerkin, director of the Institute of Mechanics of the Academy of Sciences of the USSR (July 12, 1945); Aleksei Favorsky, organic chemist, pioneer in the development of synthetic rubber (Aug. 6, 1945); Vladimir L. Komarov, botanist, former president of the Academy of Sciences of the USSR (Dec. 6, 1945).

Many Soviet citizens received awards in recognition of their services. Marshal Stalin, who received the title of generalissimo on June 27, 1945, was awarded the Order of Victory, the Order of Lenin, the Gold Star, and the title, Hero of the Soviet Union, by the Presidium of the Supreme Soviet on June 23, 1945. The Order of Victory was also given to Marshals Ivan S. Konev and Gregory K. Zhukov (March 30, 1945). Nikolai Morozov, aged 90, astronomer and geophysicist, was awarded the Order of Lenin on Aug. 15, 1944; Vladimir L. Komarov, then president of the Academy of Sciences of the USSR, was decorated on Oct. 14, 1944; and on Nov. 6, 1944, 81 members and employees of the Ukrainian Academy of Sciences were awarded the Order of Lenin. On Dec. 23, 1944, the Soviet embassy in Washington, D.C., announced that up to Oct. 1, 1944, 2,868,962 persons had been awarded decorations.

Victorious Ending of the War.—The middle of 1944 found the Red Army continuing the offensive that began in 1943 after the battle of the Kursk salient and continued, with minor interruptions, until victory. On July 1, 1944, the Berezina River was forced and Borisov taken, the site of the final blows against the remnants of Napoleon's army over a century before. Minsk, the capital of Belorussia, was recaptured July 3. Vilnius, capital of the Lithuanian SSR, was liberated July 13. Pskov was taken July 23, Narva July 26, Lwów July 27, Brest-Litovsk and Przemysl on July 28. On July 31 the Nemunas (Niemen) River, on the border of East Prussia, was forced.

Kishinev, capital of the Moldavian SSR, was liberated August 24, the Rumanian Black Sea port of Constanţa was taken on August 29, and the Red Army entered Bucharest on August 31. Marshal Tito announced (September 6) that the Red Army had entered Yugoslavia, after crossing the Danube from Rumania. Tallinn, capital of the Estonian SSR, was liberated September 22, and Riga, capital of the Latvian SSR, on October 13. The entry of the Red Army into Czechoslovakia was announced on October 18. On October 20, Belgrade was liberated by Soviet and Yugoslav troops, and the Norwegian border was reached on October 23. On the same day it was announced that the Red Army had driven into East Prussia. In his anniversary address (November 6) Marshal Stalin said that during the past year the Red Army had put 120 enemy divisions out of action, but that the Red Army still faced 180 German divisions. By November 24, Soviet land and naval forces had completed the liberation of the Estonian SSR, and other Soviet forces reached the Danube north of Budapest on December 9.

With the advent of 1945, an offensive was begun in Poland and East Prussia (January 14), Warsaw was liberated (January 17), Krakow and Lodz taken (January 19). On January 20, Tilsit in East Prussia fell, and on the following day Tannenberg was taken. Also on January 21 the Red Army crossed the German border into Silesia. The Oder River was first reached on January 23, and Soviet troops entered Pomerania January 29. After a six weeks' siege, Budapest was captured (February 13), and in Poland, Poznan fell (February 23) after a siege of one month. The Austrian border was reached on March 29. Danzig (Gdansk) was taken on March 30; Königsberg, April 9 and Vienna, April 13.

On April 23 the Red Army broke through to Berlin and reached the Elbe River northwest of Dresden. A meeting with the Anglo-American troops took place near Torgau on April 25, and on the same day the encirclement of Berlin by Soviet troops was completed. The final capture of Berlin was effected by Marshal Zhukov in cooperation with troops of Marshal Konev's command on May 2.

On May 8, German Field Marshal Wilhelm Keitel signed the act of unconditional surrender of German armed forces to the Supreme High Command of the Red Army and the Supreme Command of the Allied Expeditionary Forces at Berlin. The Presidium of the Supreme Soviet of the USSR proclaimed May 9 Victory Day, but German resistance continued in some areas. Prague was taken by Soviet troops on May 9, and only on May 13 was the last shot fired. On May 15 the Soviet Information Bureau issued the final communiqué of the war, reporting that the taking of prisoners on all fronts had been completed.

UNION OF SOVIET SOCIALIST REPUBLICS



Red Army gunners direct fire at the enemy in battle for Breslau, Germany.



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Soviet fighters hoist the Red Flag over the Reichstag building in Berlin.



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East meets West. American troops (left) reaching out to grasp hands of soldiers of the Soviet Army after the historic junction at Torgau, Germany. Above meeting took place on wrecked bridge over the Elbe River.

Three months after Germany's unconditional surrender, the Soviet Union declared war on Japan (August 8), effective the next day. On August 9 the Red Army crossed into Manchuria. On August 10, Soviet sources reported that the Mongolian People's Republic had declared war on Japan. Soviet Marines invaded Korea on August 12. Two days later (August 14) the Japanese government sent a surrender note to the four powers (Britain, United States, China, USSR), and on the same day Soviet forces entered southern Sakhalin. Marshal Vasilevsky, commander in-chief of Soviet Far Eastern forces, received the unconditional surrender of the Japanese Kwantung Army from Japanese Gen. Hikosabura Hata on August 17, and Soviet forces entered Mukden, Harbin, and Changchun on August 20. With the capture of its emperor, the state of Manchukuo was formally dissolved on August 22. On the same day Port Arthur and Dairen (Dalny) were occupied, and Soviet troops made their first landings in the Kurile Islands. The next day (August 23), in his first order of the day of the Far Eastern war, Generalissimo Stalin proclaimed victory over Japan. The occupation of the Kurile Islands was completed on September 1. On September 2, Lieut. Gen. K. N. Derevianko signed on behalf of the USSR the Japanese surrender documents on board the United States battleship *Missouri* in Tokyo Bay. Moscow announced (September 10) that Soviet losses in the Far East war from August 9 to September 9 were 8,219 killed, 22,264 wounded, while 80,000 Japanese were killed, 20,000 wounded, and 594,000 were taken prisoner. (For information concerning the Russian Navy, see NAVAL PROGRESS.)

Foreign Affairs.—During the last half of 1944 the Soviet Union established diplomatic relations with the governments of the following countries: Syrian Republic, July 25; Poland (Committee of National Liberation), August 2; Lebanese Republic, August 4; Iraq, September 12; France (provisional government), October 23; Italy, October 25; Chile, December 11; Nicaragua, December 12. During the first eight months of 1945 diplomatic relations were established with the following: Poland (provisional government, successor to the Committee of National Liberation), January 6; Dominican Republic, March 8; Venezuela, March 14; Brazil, April 2; Bolivia, April 18; Guatemala, April 19; Denmark, May 16; Ecuador, June 16; Rumania and Finland, August 6; Bulgaria, August 15. On Nov. 1, 1944, the Soviet government rejected a proposal by Switzerland (October 11) to establish diplomatic relations.

Following the 20-year treaties of friendship and collaboration concluded earlier in the war with Great Britain (May 26, 1942) and Czechoslovakia (Dec. 12, 1943), the USSR signed similar treaties with France (Dec. 10, 1944), Yugoslavia (April 11, 1945), and Poland (April 21, 1945). On Aug. 14, 1945, a 30-year treaty of alliance and friendship was signed by the USSR and China. While the treaties with the five European powers provided for joint action in case of a recurrence of German aggression, the agreements reached with China were much broader in scope. Joint action in case of a recurrence of Japanese aggression is provided for, but agreements were reached on the independence of Mongolia and Korea, on joint Chinese-Soviet ownership and management of railroads in Manchuria, on a free port in Dairen, and on a joint Chinese-Soviet naval base at Port Arthur. In the spring of 1945 the Soviet government denounced its friendship and neutrality treaty of 1925 with Turkey (March 21) and its neutrality treaty of April 1941 with Japan (April 5). The latter event was followed some four months later (August 8) by a declaration of war on Japan.

The Soviet military advance in Europe after midsummer 1944 resulted in the detachment of four countries in eastern Europe from the Fascist alliance. On Aug. 22, 1944, King Michael of Rumania announced that his country was out of the war, and on August 25 Rumania declared war on Germany. On September 12 of the same year the USSR signed an armistice with Rumania. On Sept. 5, 1944, hostilities with Finland ceased, and on Sept. 19, 1944, an armistice was signed with that country. On Jan. 31, 1945, the USSR and Finland signed a trade agreement, and on March 4, Finland joined in the war against Germany. Sept. 8, 1944, saw the end of the brief war between the USSR and Bulgaria (begun September 5). An armistice was signed with Bulgaria on Oct. 28, 1944, and diplomatic relations restored on Aug. 15, 1945. On Dec. 28, 1944, the provisional national government of Hungary (confirmed by the National Assembly December 22) declared war against Germany and signed an armistice with the USSR on Jan. 20, 1945. On June 15, 1945, the same government signed an agreement on reparations to the USSR, and on August 27 a Soviet-Hungarian trade agreement was signed. With the end of the war in Europe the Soviet Union, together with France, Britain, and the United States, established four-power control councils and zones of military occupation in Germany (June 5) and Austria (August 8).

In consequence of the amendment to the Soviet Constitution in February 1944, several Soviet republics have appointed people's commissars of foreign affairs. On July 13, 1944, D. Z. Manuilsky was appointed foreign commissar of the Ukrainian SSR, replacing Korneichuk. On Nov. 7, Nov. 29, and Dec. 5, 1944, similar appointments were made by the Latvian, Estonian, and Lithuanian SSR's.

Soviet relations with Poland have developed considerably since the establishment of the Polish Committee of National Liberation on July 23, 1944. Following the exchange of diplomatic representatives with the USSR on Aug. 2, 1944, agreements on population settlement were signed with the Polish Committee of National Liberation by the Ukrainian and Belorussian SSR's on September 9 and by the Lithuanian SSR on September 22. On Dec. 31, 1944, the committee was succeeded by a provisional government of Poland, formed in Lublin, which was recognized by the USSR on Jan. 5, 1945. The Soviet-Polish treaty of friendship followed on April 21, and on June 21, after a series of meetings in Moscow, the provisional government was broadened, according to the agreement reached at Yalta, by the inclusion of other Polish democratic leaders from Poland and abroad, to form the Polish provisional government of national unity. On July 7, 1945, this provisional government signed a trade agreement with the USSR, and on August 16 a Soviet-Polish treaty was concluded fixing the frontier between the two countries and agreeing on reparations to Poland from the Soviet zone of occupation in Germany.

With its allies in the anti-Hitler war coalition the Soviet Union has participated in several international conferences since July 1944: the monetary conference at Bretton Woods, N.H.

(July 1-22, 1944); the Dumbarton Oaks Conference on establishing a United Nations peace organization (Aug. 21–Oct. 7, 1944); the Crimean (Yalta) Conference between the British, American, and Soviet heads of state (Feb. 4-11, 1945), where agreement was reached on matters of Poland and Yugoslavia, on a general policy toward Germany when defeated, and on a policy intended to insure representative governments in postwar Europe; the San Francisco Conference, at which the United Nations Charter was worked out (April 25–June 26, 1945); the Berlin (Potsdam) Conference of the Big Three (July 17–Aug. 2, 1945), at which provisions were laid down for the administration of defeated Germany, and which delegated the problem of final peace settlements to a conference of foreign ministers of the Big Three. The USSR declined (Oct. 29, 1944) to participate in the International Aviation Conference. Soviet delegates participated in the first World Trade Union Congress in London (Feb. 6-17, 1945), and in the Paris meeting of that body (Sept. 25–Oct. 8, 1945), at which trade unionists from 56 countries, representing close to 67,000,000 organized workers, established a World Federation of Trade Unions. On Aug. 8, 1945, the USSR signed an agreement establishing the International Military Tribunal for the determination and trial of European war criminals. A provisional international administration for Tangier, with Soviet representation, was established by a conference in Paris, (Aug. 9-29, 1945). On Aug. 20, 1945, the Presidium of the Supreme Soviet ratified the United Nations Charter, and on August 22 and 30, similar ratifications were announced by the Ukrainian and Belorussian SSR's. This document came in force on Oct. 24, 1945.

As agreed at the Berlin Conference of July–August 1945, a Council of Foreign Ministers (United States, Soviet, British) was held in London, Sept. 11–Oct. 2, 1945, to discuss peace settlements for former allies of Germany in Europe. This conference adjourned without registering any agreement or issuing any statement. A diplomatic stalemate resulted until early in December, when another foreign minister's conference of the big three was scheduled to open in Moscow on Dec. 15, 1945.

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UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND. See GREAT BRITAIN.

UNITED NATIONS AND EDUCATION. See EDUCATION, REVIEW OF.

UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION or **UNCIO** (also called the SAN FRANCISCO CONFERENCE). On April 25, 1945, in response to a resolution of the Yalta (Crimean) Conference in February 1945, the United Nations Conference on International Organization was convened at San Francisco, Calif. It completed its work on June 26 with the signing of the United Nations Charter by representatives of 50 nations.

The formal purpose of the conference was to formulate and adopt this charter as a continuing constitution of the United Nations, but it also had the informal purpose of maintaining a spirit among the United Nations assuring their co-operation to make the charter work. Then United States Secretary of State Edward R. Stettinius, Jr., in his report to the president, asserted that the conference accomplished both purposes in completing the charter in "its dual quality as declaration and as constitution. As declaration it constitutes a binding agreement by the signatory nations to work together for peaceful ends and to adhere to certain standards of international morality. As constitution it creates four overall instruments by which these ends may be achieved in practice and these standards actually maintained. The first function of the charter is moral and idealistic; the second realistic and practical."

The conference was notable among international conferences in a number of respects. It was the first general political conference held outside Europe, thus symbolizing the passage of the world center of gravity from that continent. Furthermore, its membership underrepresented Europe in proportion to the representation of other sections of the world. Beginning with 46 states it ended with 50 of which 22 were American, 15 Asiatic, Pacific and African, and 13 European.

It was a conference of the United Nations, still fighting their principal enemies when it convened, although the surrender of Germany took place during the conference. Italy had surrendered nearly a year earlier and Japan was to surrender seven weeks after its close. It was therefore unprecedented in being a conference to organize peace held in the midst of war. While it had some of the aspects of a peace conference, detailed terms of peace with the enemy, territorial settlements, and economic and financial conditions were carefully excluded from its agenda. The United Nations in organizing the conference purported to act for the community of nations as a whole, and the charter which they produced provided that the organization "shall ensure that states which are not Members of the United Nations act in accordance with these Principles as far as may be necessary for the maintenance of international peace and security."

The membership of the conference was not as numerous as that of other international conferences. Nine Axis powers and eight neutral powers were excluded and one United Nation (Poland), lacking a government generally recognized, failed to be admitted. Yet, because of the size of the delegations and of the Secretariat, the personnel involved in the conference was larger than at any previous conference. Some 10,000 persons participated officially or unofficially in its work. More than 1,500 belonged to delegations including advisers, experts, and assistants. More than 1,000 officials and assistants performed the internal services of the International Secretariat and this body employed nearly 5,000 additional persons in services of transportation, guarding, and communications. In addition, some 2,500 representatives of the press, radio, and cinema informed the world's public of the proceedings.

The conference took place in the San Francisco's Civic Center. The plenary sessions and commission meetings were held in the Opera House, and the committee meetings in the Veterans Building which also housed the International Secretariat. The delegates were housed in hotels throughout the city and adequate transportation was provided by the International Secretariat.

The conference was organized into plenary sessions, commissions, committees and subcommittees. The plenary sessions presided over by the principal delegates of the sponsoring powers in rotation were occasions for general declara-

tions of policy and formal approval of agreements reached in committees, although in one session, that in which Argentina was admitted to the conference, there was vigorous debate and a vote, with not fully anticipated results. There were nine such sessions at the beginning of the conference and one at the end. They were open to the press and such of the public as could obtain tickets.

The work of the conference was divided among four commissions dealing respectively with general problems, the General Assembly, the Security Council and the Court of International Justice. These also were public but seldom did more than ratify agreements reached in committees. The real work of the conference was done in committees, several for each commission and each frequently making use of subcommittees. Every delegation was entitled to representation in each committee. Committee discussions were private but résumés were given to the press after the first two weeks of the conference, during which the press had expressed some discontent at the inadequacy of the information provided.

In addition to the committees of the commissions, there was a steering committee of the heads of the delegations and an executive committee consisting of 14 states chosen by the plenary session. A co-ordinating committee also functioned in order to bring the work of the commissions together and draft the final text.

Most important of all were the meetings of the sponsoring powers although these were not formal meetings of the conference. These took place, not in the Veterans Building, but in the apartment of the head of the American delegation. At first only the four sponsoring powers—the United States, the United Kingdom, the Soviet Union, and China—attended but France was later admitted. The important political decisions of the conference were made in these meetings. The procedure was criticized by some on the ground of secrecy and by others on the ground of its undemocratic character. The press complained that information on the Big Five meetings was not given out, but in fact, important decisions and even the debate which led to them, usually found its way into the press. Delegations frequently complained of this leakage. The great powers justified these meetings on the ground that their unity should be preserved either in maintaining, or in agreeing upon modifications of, the Dumbarton Oaks proposals. Other states felt that this solidarity prevented a fair discussion of issues upon their merits.

The procedure of the conference was probably the most democratic and public of any political international conference and the criticisms arose from the inherent difficulty of adjusting the requirements of bargaining with the requirements of developing a favorable public opinion. It was recognized that the success of the conference depended upon maintaining the solidarity of the great powers who commanded over one half of the population of the United Nations and a larger proportion of their material resources and power. Confidential discussions to achieve agreement among these powers was therefore essential. The delegations, however, were afraid that a favorable public opinion could not be maintained unless the public in all countries had a sense of participation which could only be assured through adequate publicity. The policy of official secrecy and unofficial leakages was the method of solving the difficulty.

The commissions, committees, and plenary sessions acted through a two-thirds vote, a novelty in international political conferences. This procedure led to political alignments and blocs not unlike those in national parliaments. The Latin American bloc, the Arab bloc, and the Soviet bloc usually acted as units. This was less true of the British countries; Australia, New Zealand and Canada assumed a position of leadership among the middle-sized powers which often brought them into opposition with the United Kingdom.

Apart from the opening and closing sessions, the conference was not given to oratory. It labored diligently with the single-minded purpose of reaching results. Millions of pages were mimeographed, the committees often working late into the night, and the International Secretariat was at work almost continually, preparing documents, both for the delegations and for the press. While the activities of the International Secretariat and the material arrangements of the conference at first caused some criticism, after the first few weeks the machinery was operating smoothly.

The San Francisco Conference was one of a series of United Nations conferences. Technical problems had been dealt with in earlier general conferences at Hot Springs, Atlantic City, Philadelphia, Bretton Woods, and Chicago. Major political problems had been dealt with by the leaders of the great powers at Casablanca, Moscow, Cairo, Teheran, Quebec, and Yalta. The immediate antecedent of the San Francisco Conference was the conference at Dumbarton Oaks, held Aug. 21 to Oct. 7, 1944, by the United States, United Kingdom, the Soviet Union, and China. These four powers were the sponsoring powers of the San Francisco Conference, France having declined to accept an invitation extended after the Yalta Conference to join them.

The Dumbarton Oaks proposals, together with certain proposals made by China and accepted by the sponsoring powers and the voting procedure for the Security Council agreed upon by the sponsoring powers at Yalta, constituted the agenda of the conference. Members were permitted to present amendments and revisions up to May 5 and numerous such proposals were made. All of these documents, bound in a volume of some 400 pages were placed in the hands of all delegates and provided the basis for discussion.

The conference opened with speeches from the delegations, all of which paid tribute to the late President Franklin Delano Roosevelt and gave expression to a determination to succeed in the tasks of the conference. The problem of the chairmanship presented the first difficulty. The United States, supported by Latin American countries, wished the chairmanship to go, according to custom, to the head of the host delegation but the Soviet Union pressed for rotation among the sponsoring powers. The issue was solved by agreeing to rotation in the plenary sessions and giving the chief American delegate the chairmanship of the executive committee and steering committee.

The issue, however, disclosed a solidarity among the American states, which constituted nearly one half of the conference, somewhat alarming to certain delegations. The apprehension that a solid American bloc might unduly influence the course of the conference had been augmented by the Mexico City conference of the

American powers which had closed shortly before the San Francisco Conference opened. The Declaration of Chapultapec which emerged from that conference proposed that the American states should constitute a regional arrangement under the United Nations Organization to be established at San Francisco. At Mexico City agreements were also made looking toward the admission of the Argentine Republic to the United Nations.

The Argentine issue was raised at San Francisco and was related to the issue of admission of two Soviet republics and Poland to the conference. The United States having agreed at the Yalta Conference to admit the two Soviet republics—the Ukraine and Belorussia (White Russia)—urged this action upon the Latin American states some of whom, while supporting this move, appeared to have assumed that the admission of the Argentine Republic would be a *quid pro quo*. The Soviet delegation, however, felt the admission of the two Soviet republics was a right involving no other commitments and sought to prevent the admission of Argentina which the Soviets regarded as a Fascist state. This effort failed after a moving appeal by the principal Soviet delegate in a plenary session, and Argentine was admitted by a large majority.

While taking this defeat graciously, the Soviet delegation may have thought it deserved compensation by the admission of the government of Poland which it sponsored, but its plea was unsuccessful. The United States and Great Britain were not convinced that the Polish government conformed to the requirements laid down at Yalta. A new Polish government was recognized in June but too late to attend the conference. Denmark, liberated from Germany during the course of the conference, was unanimously admitted.

The importance of the conference was indicated by the attendance of foreign ministers from the principal countries including Secretary of State Stettinius from the United States, Anthony Eden from the United Kingdom, Molotov from the Soviet Union, T. V. Soong from China, and Bidault from France. In view of exigencies arising from the termination of war with Germany and a pending election in Great Britain, these foreign ministers, with the exception of Secretary Stettinius, had to return home before the conference was over. In general, however, all of the participating states continued to be excellently represented.

The major issues concerned the veto of the great powers in the Security Council, the competence of regional organizations in relation to the Security Council, the competence of the General Assembly to recommend modifications of treaties and regulation of conditions dangerous to peace, the supervision of the administering of dependencies and the organization of trusteeship administration, and provisions for revision of the charter. On all of these matters some compromises and additions were made but the main structure of the Dumbarton Oaks proposals remained in accordance with the insistence of the great powers.

The Soviet proposal that the veto vote should apply even to the initiation of discussions in the Security Council precipitated the major crises of the conference. On this the Soviets finally yielded, as a result of negotiations conducted in Moscow involving also the recognition of a Polish government satisfactory to the Soviet government. The powers of the General Assembly and those of the Economic and Social Council were strengthened because of the insistence of the smaller powers, especially in the fields of cultural and educational relations and the protection of human rights and fundamental freedoms.

The adequacy of the charter to perform its tasks can only be known with experience in its operation. The San Francisco Conference did, however, perform a notable task in achieving unanimous agreement among the delegations present upon a charter which commended itself both to the ratifying authorities in the respective countries and to public opinion. This success was in part due to lengthy preparation in the earlier work of the United Nations, especially at Dumbarton Oaks, in part to the world's experience with the League of Nations, and in part to the necessity felt throughout the United Nations for a more adequate organization of world affairs. A share in this success, however, belonged to the delegations present at San Francisco who were unanimously determined to succeed. The conference, whatever changes time may bring in its work, will undoubtedly stand out as a landmark in human history. See also WORLD POLITICS.

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UNITED NATIONS CHARTER

As finally agreed upon, the charter consists of a preamble and 19 chapters, to which is annexed the Statute of the International Court of Justice. This court was established by the charter "as the principal judicial organ of the United Nations," and the statute describing its organization, competence, and procedure extends to 70 articles.

Chapter I of the charter, entitled "Purposes and Principles" and divided into two articles with subsidiary clauses, states that the purposes of the United Nations are: "To maintain international peace and security, and to that end: to take effective collective measures for the prevention and removal of threats to peace. . . . To develop friendly relations among nations. . . . To achieve international co-operation in solving international problems of an economic, social, cultural, or humanitarian character. . . . To be a center for harmonizing the actions of nations in the attainment of these common ends." Article 2 defines the principles in accordance with which the organization and its members shall act. These are: equality of all members; fulfillment in good faith by members of the obligations assumed in subscribing to the charter; peaceful settlement of international disputes; abstention from the threat or use of force against the territorial integrity or political independence of any state; support by all members for any action taken by the United Nations in accordance with the charter; the organization shall ensure that states not members of the United Nations act in accordance with these principles; nothing in the charter shall authorize intervention in matters 'which are essentially within the domestic jurisdiction of any state'."

Chapter II (Arts. 3–6) describes the rules of membership, reasons for suspension of membership, and for expulsion.

Chapter III (Arts. 7,8) establishes as principal organs of the United Nations "a General Assembly, a Security Council, an Economic and Social Council, a Trusteeship Council, an Inter-

national Court of Justice, and a Secretariat." It also provides for the establishment of "such subsidiary organs as may be found necessary," and establishes equality between men and women who participate in the various United Nations organs.

Chapter IV (Arts. 9–22) describes the General Assembly. Its composition consists of all the members of the United Nations, each member having not more than five representatives. Most of this chapter is devoted to the General Assembly's functions and powers. Two articles deal with voting, each member to have one vote, and decisions on important questions to be made by "a two thirds majority of the members present and voting"; other questions to be decided by " a majority of the members present and voting." Members in arrears in the payment of their contributions to the organization over a period of two years are deprived of their vote. The last three articles of the chapter deal with procedure: annual sessions of the assembly, and special sessions as convoked by the secretary general at the request of the Security Council or by a majority of the members of the United Nations; the assembly to adopt its own rules of procedure and elect its president for each session; authorization to establish subsidiary organs.

Chapter V (Arts. 23–32) in the same manner describes the Security Council. This council is to consist of 11 members of the United Nations. Permanent members are to be China, France, the USSR, Great Britain, and the United States. The nonpermanent six members are elected for two-year terms by the General Assembly. Each Security Council member has one representative. On the Security Council is placed "primary responsibility for the maintenance of international peace and security" on behalf of the United Nations. The Security Council is required to submit annual and special reports to the General Assembly. It is charged with planning a system for the regulation of armaments. Each member of the Security Council has one vote; decisions on procedural matters are made by an affirmative vote of seven members; but in other matters this affirmative vote of seven must include concurrent votes of the permanent members; however, a party to a dispute must abstain from voting. The Security Council is organized to function continuously; it holds periodic meetings which may, however, be held at other places than the seat of the organization; it is authorized to establish subsidiary organs, adopt its own rules of procedure, and admit to its discussions any member of the United Nations which is not a member of the Security Council; the Security Council may also invite to participate in its discussions of disputes representatives of states which are not members of the United Nations.

Chapter VI (Arts. 33–38) details methods for pacific settlement of disputes between nations.

Chapter VII (Arts. 39–51) describes the measures to be taken with respect to threats to the peace, breaches of the peace, and acts of aggression. These include, upon decision of the Security Council, "complete or partial interruption of economic relations and of rail, sea, air, postal, telegraphic, radio, and other means of communications, and the severance of diplomatic relations." They also include, in the event that such measures prove inadequate, "demonstrations, blockade, and other operations by air, sea, or land forces of Members of the United Nations." To this end all members undertake to make available to the Security Council "armed forces, assistance and facilities." Air force contingents of members are to be held ready for immediate combined international enforcement action. Plans are to be made for the application of armed force by the Security Council assisted by the Military Staff Committee which consists of the chiefs of staff of the permanent members of the Security Council or their representatives. Action required to carry out the Security Council's decisions is to be taken by all the members, or some of them, as the council may determine. It is stipulated that nothing in the charter "shall impair the inherent right of individual or collective self-defense if an armed attack occurs against a Member of the United Nations, until the Security Council has taken the measures necessary to maintain international peace and security."

Chapter VIII (Arts. 52–54) authorizes regional arrangements, "provided that such arrangements or agencies and their activities are consistent with the Purposes and Principles of the United Nations." But it forbids enforcement action taken under regional arrangements or by regional agencies "without the authorization of the Security Council."

Chapter IX (Arts. 55–60) defines the scope of international economic and social co-operation of the United Nations "with a view to the creation of conditions of stability and well-being." Accordingly, the United Nations are pledged to promote: "a. higher standards of living, full employment, and conditions of economic and social progress and development; b. solutions of international economic, social, health, and related problems; and international cultural and educational co-operation; and c. universal respect for, and observance of, human rights and fundamental freedoms for all without distinction as to race, sex, language, or religion." Responsibility for the discharge of the functions set forth in this chapter is vested in the General Assembly and, under its authority, in the Economic and Social Council.

Chapter X (Arts. 61–72) establishes the Economic and Social Council which is to consist of 18 members of the United Nations elected by the General Assembly, 6 members to be elected each year for a term of three years. At the first election the full number of 18 will be elected, but the terms of 6 will expire in one year, while those of 6 others will expire in two years, thus initiating the system of annual elections of 6 new members. The functions and powers of the Economic and Social Council include making studies and reports, recommendations to the General Assembly, members of the United Nations and specialized agencies, and the convoking of international conferences. It may also furnish information to the Security Council.

Chapter XI (Arts. 73–74) is a declaration regarding nonself-governing territories. It states that members of the United Nations "which have or assume responsibilities for the administration of territories whose people have not yet attained a full measure of self-government recognize the principle that the interests of the inhabitants . . . are paramount." They are pledged to ensure the advancement of these subject peoples, protect them against abuses, "to develop self-government, to take due account of the political aspirations of the peoples."

Chapter XII (Arts. 75–85) establishes a system of international trusteeship "for the administration and supervision of such territories as may be placed thereunder by subsequent individual agreements." Application of the trusteeship system is made to: "a. territories now held

under mandate; b. territories which may be detached from enemy states as a result of the Second World War; and c. territories voluntarily placed under the system by states responsible for their administration." But there is a saving clause that "It will be a matter for subsequent agreement as to which territories in the foregoing categories will be brought under the trusteeship system and upon what terms." Furthermore, the trusteeship system is inapplicable to territories which have become United Nations members.

Chapter XIII (Arts. 86–91) establishes the Trusteeship Council which consists of: "a. those Members administering trust territories; b. such of those Members mentioned by name in Article 23 as are not administering trust territories; and c. as many other Members elected for three-year terms by the General Assembly as may be necessary to ensure that the total number of members of the Trusteeship Council is equally divided between those Members of the United Nations which administer trust territories and those which do not."

Chapter XIV (Arts. 92–96) states that the International Court of Justice "shall be the principal judicial organ of the United Nations," and that "it shall function in accordance with the annexed Statute, which is based upon the Statute of the Permanent Court of International Justice and forms an integral part of the present Charter."

Chapter XV (Arts. 97–101) provides for the organization of a secretariat comprising "a Secretary-General and such staff as the Organization may require." The secretary general is appointed by the General Assembly on recommendation of the Security Council and he is "the chief administrative officer of the Organization."

Chapter XVI (Arts. 102–105) deals with miscellaneous provisions: registration of treaties and international agreements with the Secretariat; obligations of members towards provisions of the charter to take precedence over their obligations under any other international agreement; privileges and immunities of the organization in the territory of members, and like privileges and immunities for the representatives of members.

Chapter XVII (Arts. 106, 107) deals with transitional security arrangements.

Chapter XVIII (Arts. 108, 109) provides for amendment of the charter by a vote of two thirds of the members of the General Assembly, including all the permanent members of the Security Council, and for the convoking of a general conference of the members to review the present charter at a date fixed by a two-third vote of the members of the General Assembly "and by a vote of any seven members of the Security Council."

Chapter XIX (Arts. 110, 111) deals with the ratification of the charter by the signatory states, these ratifications to be deposited with "the Government of the United States of America, which shall notify all the signatory states of each deposit as well as the Secretary-General of the Organization when he has been appointed." The charter is to come into force upon ratifications by "the Republic of China, France, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, and the United States of America, and by a majority of the other signatory states." The final article declares that the Chinese, French, Russian, English and Spanish texts of the charter are equally authentic.

Signing and Ratification.—The charter, including the statute of the International Court of Justice, was signed on June 26, 1945, first by the representatives of the five permanent members of the Security Council, then by the representatives of the other nations in alphabetical order. A place was left for Poland's signature at a later date.

The first government to ratify the charter was Nicaragua (July 6). Under the charter's terms the five big powers and a majority of the smaller countries, or 29 out of a total of 51, had to ratify before the charter and the organization could come into force. Accordingly, when, on October 24, the Soviet government deposited its instrument of ratification with Secretary of State James F. Byrnes, the 29th state so to do, the Charter of the United Nations became a part of international law, and the United Nations World Security Organization came into being. As of Oct. 31, 1945, the charter was in effect with respect to 32 nations.

UNITED NATIONS RELIEF AND REHABILITATION ADMINISTRATION (UNRRA). Established Nov. 9, 1943, when the United Nations and other nations associated with them in the war effort signed an agreement at the White House in Washington, D.C., this organization was created, according to the preamble of the agreement signed, to give effect to the determination that "immediately upon the liberation of any area by the armed forces of the United Nations or as a consequence of retreat of the enemy, the population thereof shall receive aid and relief from their sufferings, food, clothing, and shelter, aid in the prevention of pestilence and in the recovery of the health of the people; and that preparation and arrangements shall be made for the return of prisoners and exiles to their homes; and for assistance in the resumption of urgently needed agricultural and industrial production and the restoration of essential services."

It was not found feasible for the UNRRA to begin supply operations in substantial fashion until April 1945, though the need for relief and rehabilitation in many liberated areas became acute long before then. The intervening period, however, was put to good use. The international organization needed was set up and preparations for full-scale operation were completed; needed additional field workers were trained; and camps were meanwhile administered for many thousands of displaced persons.

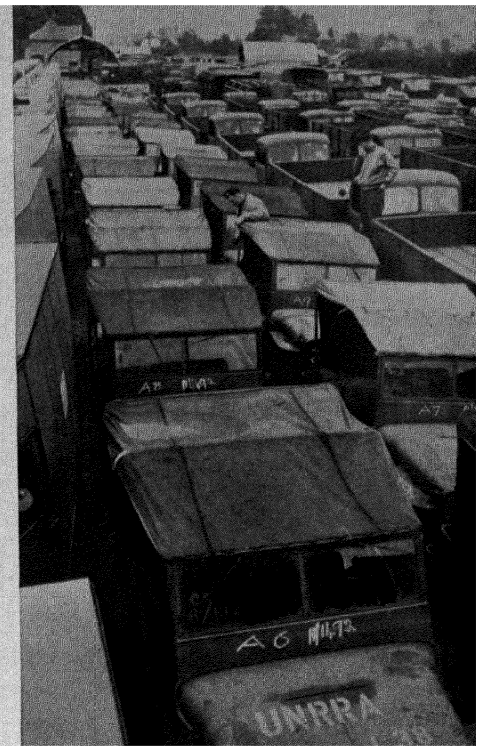
Operations moved steadily forward at an accelerated pace in April, and by October it was reported that nearly 2,000,000 tons of food, medical supplies, and essential industrial and agricultural equipment had been shipped to the liberated countries. Full-scale operations were then in progress in Greece, Yugoslavia, Czechoslovakia, and Albania, while limited welfare programs operated in Italy and China. UNRRA teams, in co-operation with the military, had cared for or repatriated millions of displaced persons. In Germany alone, over 4,000,000 of the 6,000,000 displaced persons found there were repatriated with assistance from the UNRRA. By September relief had been granted the Philippines. Small-scale ($10,000,000) operations in Italy and China were on the point of being converted to large-scale ($450,000,000) operations, and the London conference of the UNRRA Council, which opened on August 7, added Korea and Austria to the list of countries eligible for aid.

Many hostile criticisms of the UNRRA, offi-

UNITED NATIONS RELIEF AND REHABILITATION ADMINISTRATION



Two Polish children boarding a Coast Guard-manned transport which will carry them far from dangers of war.



Parked together for last time, 94 jeeps ready to be dispersed to UNNRA displaced persons centers in Germany.



Peasant women of New Anchialos, Greece, spinning outside the temporary huts they have had to build as shelters since the destruction of their village.

cials declared, were founded upon a misconception of the organization's proper functions. The UNRRA, it was explained, assisted only those countries which solicited its aid, and which were found, after investigation, not to have adequate foreign exchange to do the relief and rehabilitation jobs themselves. Many questions, for example, as to why the UNRRA did not come to the aid of France, Belgium, and Holland, were answered by the simple fact that these countries had not requested aid, as they preferred to solve their own procurement and transportation problems. While the war was still on, moreover, the UNRRA met with gigantic difficulties in obtaining shipping and other transportation, as naturally military requirements had to be given priority. In many cases, not only were ships unavailable, but ports were closed, bridges destroyed, and internal transport practically nonexistent. The UNRRA also met with frequent and extended difficulties in obtaining supplies. Again, delay in obtaining the necessary funds wherewith to operate frequently handicapped the organization.

The UNRRA specified its total needs at $3,700,000,000—one per cent of the annual 1943 income of the uninvaded countries, twice assessed. For the United States, the total assessment was placed at $2,700,000,000, on the grounds that the United States had more than 75 per cent of the income of the nations not invaded during the war.

Up to September 1945 the United States had actually put into UNRRA operations $800,000,000.

The time limit on operations for the UNRRA was set for the end of 1946 in Europe, and for the end of the first quarter of 1947 in the Far East.

UNITED NATIONS WAR CRIMES COMMISSION. See WAR CRIMES TRIALS.

UNITED SERVICE ORGANIZATIONS, Inc. (USO). Growing out of the need to provide welfare and recreation to trainees under the Selective Service Act of 1940, USO was chartered Feb. 4, 1941. The six long-established social service organizations which sponsored it are the YMCA, the YWCA, the National Catholic Community Service, the Salvation Army, the National Jewish Welfare Board, and the National Travelers Aid Association. It has united three great religious faiths—Protestant, Catholic and Jewish—to win the battle of morale behind the lines.

More than one billion people have been served in some manner by USO since its inception. This figure includes those who attended USO-Camp Shows, and those who utilized the various clubs, information centers, lounges and associated activities.

The heart and soul of USO is the club, "a home away from home," housed in many types of buildings. USO originally planned to open but 341 clubs in 200 small communities adjacent to army camps, where recreational facilities were overtaxed or nonexistent. The basic disruption of life hastened by the actual outbreak of war increased the demand for USO services, and a growing army of millions found that USO helped to bridge the gap between civilian and military life. As of Sept. 1, 1945, there were 1,645 clubs; of these, 881 were operated by one or more of the six national agencies, 649 were community-conducted, and 115 were overseas. These clubs were run by 3,738 paid professional workers and approximately 800,000 unpaid volunteers drawn from all age groups and walks of life. Based on a recent six-month average, USO reports a total monthly building attendance of 26 million people.

USO is entirely supported by voluntary contributions of the American people either to the National War Fund or to USO direct. In 1941 and 1942, USO conducted its own campaigns, raising $14,000,000 and $34,000,000 respectively. In 1943, USO received $61,000,000 from the first National War Fund campaign, and in 1944 its share was $56,000,000. The 1945–46 USO budget called for $52,096,500, to be paid out of a total National War Fund goal of $115,000,000. Administrative costs of USO are approximately 10 per cent of its total budget.

USO officials for 1945 include: president, Dr. Lindsley F. Kimball; honorary chairman, John D. Rockefeller, Jr.; chairman of the board, Walter Hoving; vice-chairman of the board, Harper Sibley; secretary, C. Frank Kramer, Jr.; vice-presidents, Mrs. Henry A. Ingraham, Randall J. LeBoeuf, Jr., Francis P. Matthews, Comm. Donald McMillan, W. Spencer Robertson and Frank L. Weil. USO national headquarters comprise three floors of the Empire State Building in New York City, and a separate national office for USO-Camp Shows is maintained at 8 West 40th Street, near the heart of America's theatrical world.

USO-Camp Shows, Inc.—Incorporated as an auxiliary organization to USO in November 1941, to provide organized entertainment for members of the armed forces at home or abroad, USO-Camp Shows has become the largest theatrical booking agency in the world. In continental United States the basic program is carried on by the Victory Circuit, which plays to the larger posts, camps and stations, and by the Hospital Circuit, which plays to patients in army and navy hospitals. Overseas from November 1941, 4,276 USO-Camp Shows entertainers appeared in 37 localities to provide the best available shows and concerts for American forces. For military reasons, attendance figures at overseas performances were not reported while the war was in progress; however, during this same period, 139 million troops saw USO-Camp Shows in this country. USO-Camp Shows offices are in New York, Chicago and Hollywood.

Other USO Services.—In overseas areas, ranging from Alaska to Newfoundland through Hawaii, the Philippines, Panama, Bermuda, the Caribbean and down into Brazil and Peru, where the main morale problems are loneliness and boredom, USO maintained 156 overseas operations as of Sept. 1, 1945. Hawaii, a jumping-off-place for Pacific offensives since Pearl Harbor, has been the center of much USO activity, and recently the Philippines have been the scene of USO expansion. The end of the Pacific war means that USO will serve homecoming troops and also those en route to Japan for occupational duty.

Geared to the defensive and training phase of the war effort, USO Mobile and Maneuvers Services sent out specially built and equipped trucks—"USO clubs on wheels"—to servicemen guarding lonely off-shore installations and to troops on maneuvers far from recreational opportunities. On Sept. 1, 1945, there were 105 such units carrying games, books, music, light refreshments, sound recording equipment and other articles to occupation forces, newly-acquired bases and, amphibiously, to ships at sea.

The National Travelers Aid Association

joined hands with USO in 1941 to direct trainees to camp and workers to defense factories. Travelers Aid service desks, staffed by trained social workers, are located in railroad and bus terminals throughout the country. Troops-In-Transit station lounges, equipped with snack bars and sleeping facilities, have enabled servicemen to snatch refreshment and relaxation between trains. On Sept. 1, 1945, there were 148 lounges and 126 other Travelers Aid services co-operating with USO.

Service wives look to USO for information, for help in obtaining living quarters, and for companionship with other women at luncheons, discussion groups and sports programs arranged for them at USO clubs. There are whole USO clubs primarily for service women in Washington, Des Moines, Los Angeles, Seattle and other parts of the country. In certain industrial towns, women on the assembly lines, Civil Service office workers, aircraft employees and other women found at the USO Club the center for the kind of community life which they had known at home.

USO now maintains more than 400 operations in 84 communities adjacent to military general hospitals, at which disabled service men may maintain morale and learn new skills during convalescence. Through group activities, use of program opportunities in the community, and individual services, USO seeks to offset isolation and confinement to hospital, reaction to disability and combat experience, impending discharge or reassignment to duty, and problems of family relationship which emerge from or are precipitated by family visits.

More than 150 artists working in the United States for USO-Camp Shows Hospital Sketching Program devote considerable free time to this volunteer service, which covers the various army general hospitals and naval hospitals throughout the United States. Overseas, there are 26 artists and seven caricaturists. Since Aug. 1, 1944, about 30,000 drawings of servicemen have been produced. Negative and positive photostats of the original drawing are made in the New York office and sent to the person or persons whom the subject designates. Frequently, the sketch is the last likeness possible for some wounded man to send home.

USO Scrapbook Service sends interesting and entertaining reading matter to servicemen and women in camps, hospitals, foreign lands, and to ships at sea. Blank scrapbooks are bought in lots from Scrapbook Service by responsible organizations of all sorts, including USO service committees, who then distribute them to women volunteers to fill with long and short stories, cartoons and jokes, articles on light and serious subjects, pictures, quizzes, and a variety of other materials. Completed books are distributed through the Special Service Supply Division of the United States Army, the Welfare and Recreation Division of the United States Navy, the USO Overseas Department and USO Mobile and Maneuvers Services. USO clubs, Troops-In-Transit lounges, army camps and hospitals, naval stations and shipbuilding companies have all received USO Scrapbooks.

The 2,461 USO operations that existed on Sept. 1, 1945, included 1,308 administered by one or more of the six national agencies and 997 community-conducted operations. USO operations were located in 1,096 cities and towns in the 48 states and 16 overseas areas.

ALBERT E. DALE,
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UNITED STATES EMPLOYMENT SERVICE (USES). See WAR MANPOWER COMMISSION.

UNITED STATES MARITIME COMMISSION. See MARITIME COMMISSION, UNITED STATES.

UNITED STATES OF AMERICA. Territorially, the United States of America comprises the 48 states making up what is commonly referred to as the Union; the District of Columbia, the territories of Alaska and Hawaii, Puerto Rico, the Virgin Islands, American Samoa, Guam, and some smaller islands in the Pacific Ocean. Areas accruing permanently to the United States as a result of the Second World War, consisting chiefly of military bases, remained to be determined at the United Nations Conference. The gross area of continental United States, land and water, is 3,022,387 square miles; that of the outlying possessions, including Alaska and the Philippines, 712,836 square miles; making a total gross area of 3,735,223 square miles. Washington, D.C., the national capital, had a population in 1940 of 663,091, and ranked 11th in size among the cities of the country. See articles on the various states, territories, and possessions.

Population.—On Nov. 20, 1945, the Bureau of the Census announced that the population of the United States passed the 140,000,000 mark about October 1. On the basis of this estimate, the approximate increase in the population since 1940, when it stood at 131,669,275, was 8,330,-725 in the five and one-half years. In the decade between 1930 and 1940 the increase was 8,894,-229. The 1930 population was 122,775,046.

Government.—Republic in form, the government of the United States is divided into three branches—the executive, the legislative, and the judicial. Below are listed the various divisions of the different branches:

EXECUTIVE BRANCH

Under the Constitution of the United States, the executive power is vested in a president, who, together with the vice president, chosen for the same term, holds office for four years. The president in 1945 was Franklin D. Roosevelt until his death on April 12, when he was succeeded by Vice President Harry S. Truman. In addition to the president, the executive branch is composed of 10 departments (each headed by a member of the president's Cabinet), and also a number of independent establishments. The names of the various departments, and the head of each in 1945 were as follows:

DEPARTMENT OF STATE—Secretary, Edward R. Stettinius, Jr., of New York, until July 2; succeeded by James F. Byrnes of South Carolina.

DEPARTMENT OF THE TREASURY—Secretary, Henry Morgenthau, Jr. of New York, until July 17; succeeded by Fred M. Vinson of Kentucky.

DEPARTMENT OF WAR—Secretary, Henry L. Stimson of New York, until September 25; succeeded by Robert P. Patterson of New York.

DEPARTMENT OF JUSTICE—Attorney General, Francis Biddle of Pennsylvania, until June 14; succeeded by Thomas C. Clark of Texas.

POST OFFICE DEPARTMENT—Postmaster General, Frank C. Walker of Pennsylvania, until May 7; succeeded by Robert E. Hannigan of Missouri.

DEPARTMENT OF THE NAVY—Secretary, James V. Forrestal of New York.

DEPARTMENT OF THE INTERIOR—Secretary, Harold L. Ickes of Illinois.

DEPARTMENT OF AGRICULTURE—Secretary, Claude R. Wickard of Indiana, until June 1; succeeded by Clinton P. Anderson of New Mexico.

DEPARTMENT OF COMMERCE—Secretary, Jesse Jones of Texas, until March 1; succeeded by Henry A. Wallace of Iowa.

DEPARTMENT OF LABOR—Secretary, Frances Perkins of New York, until May 31; succeeded by Lewis B. Schwellenbach of Washington (State).

LEGISLATIVE BRANCH—CONGRESS
SENATE: 96 senators.
HOUSE OF REPRESENTATIVES: 435 representatives; 2 delegates; 2 resident commissioners.

JUDICIAL BRANCH
Supreme Court.
Circuit Courts of Appeal.
District Courts.
Special Courts:
Court of Claims.
Court of Customs and Patent Appeals.
Customs Court.
District of Columbia Courts.
Territorial Courts.

Congress.—The Congress of the United States consists of two branches—a Senate of 96 members, and a House of Representatives of 435 members. Senators hold office for six years; representatives for two years. Both senators and representatives are elected by universal suffrage, one third of the Senate every two years; the entire House every two years. To be eligible for the office of senator the candidate must be at least 30 years of age; must be a resident of the state in which he seeks election; and must have been a citizen of the United States for at least nine years prior to his election. To be eligible for election as a representative, the candidate must be at least 25 years of age; must be a resident of the state and congressional district in which he seeks election; and must have been a citizen of the United States for at least seven years prior to his election. The vice president of the United States presides over the Senate when in session; the House is presided over by the speaker, who is elected from the House membership by the members. Congress meets on January 3 of each year, "unless they shall by law appoint a different day." The president has the power to call an extra session of either or both houses of Congress when he deems such action necessary. All revenue bills must originate in the House of Representatives, but, of course, must be passed by both houses and be signed by the president (or passed over his veto) before they become law.

79th Congress.—Elected Nov. 7, 1944, the 79th Congress convened on Jan. 3, 1945, for its first session. The new Senate contained 57 Democrats, 38 Republicans, and 1 Progressive, the party division being exactly the same as obtained in the 78th Congress. The new House of Representatives consisted of 243 Democrats, 190 Republicans, 1 Progressive and 1 American Labor; it differed from its predecessor in the considerable increase (21) of Democrats with a corresponding diminution of Republicans. Deaths and resignations during the year slightly reduced the membership of both houses, so that on November 15 the Senate, having lost by death Senator John Thomas, numbered 95, while the House, having lost four of its original members, numbered 431.

During 1945, Congress gave ready assent to a series of measures which pledged full cooperation by the United States with other nations to maintain the peace and solve political, social and economic problems left by the war. In July the Senate ratified the United Nations charter, while in December both houses approved legislation to make United States military forces available for the enforcement of peace without further action by Congress. Both houses also approved by large majorities United States participation in the International Bank and the World Monetary Fund agreed upon at Bretton Woods. A measure designed to promote a freer flow of world trade authorizes the president to make additional cuts in American tariffs—of as much as 50 per cent—in postwar trade agreements with other nations. Additional appropriations were made for the work of the United Nations Relief and Rehabilitation Administration, and membership was accepted in the World Food Organization. Other measures enacted by Congress include the following:

Bill to raise the national debt limit to $300,000,000,000; bill extending the Selective Service Act to May 15, 1946; bills extending the price control, stabilization and food subsidy programs until June 30, 1946; bill extending the Trade Agreements Act until 1948, with the tariff reductions referred to above; bill to speed up tax refunds for reconversion; bill withdrawing shipbuilding appropriations; revenue bill providing tax reductions for 1946 totaling $5,900,000,000, including repeal of wartime excess profits tax; bill making a cut of $51,800,000,000 in funds for war purposes; bill extending for six months special war powers of the president; and Government Reorganization Act.

The 1945 session of Congress adjourned on December 21. Up to that time it had taken no final action on a number of measures advocated by President Truman. These included his fact-finding measure in industrial disputes; his full production and employment bill (in conference); minimum wage rate increase; price ceilings for housing; postwar salary increases for government employees and officials; liberalization of the Social Security Act; permanent Fair Employment Practice Commission; general housing and health programs, including compulsory health insurance; encouragement of scientific research and control of atomic energy; regional development; St. Lawrence power-seaway project; universal military training; selective service inductions for two years; unification of armed services; and new presidential succession act.

Contradictions in the reports of the army and navy boards on the Pearl Harbor disaster, made public by President Truman on August 29, led Congress to order a public investigation by a joint committee of both houses. It provided for a committee of 10 members—3 Democrats and 2 Republicans from each house. The investigation opened November 15, and soon became marked by partisan wrangling. The resolution authorizing the Pearl Harbor investigation called for a report by Jan. 3, 1946, but both houses voted an extension to Feb. 15, 1946, in the closing hours of the 1945 session.

Supreme Court.—As of Nov. 15, 1945, the personnel of the Supreme Court was as follows: Chief Justice, Harlan Fiske Stone; Associate Justices, Hugo L. Black, Stanley Reed, Felix Frankfurter, William O. Douglas, Frank Murphy, Robert H. Jackson, Wiley Blount Rutledge, Jr., and Harold H. Burton.

Finances.—See TREASURY OF THE UNITED STATES.

Education.—Each state has a free school system maintained by public funds. In most states the work of these public schools is supplemented by private and parochial schools, and in the newer states the federal government has set aside certain sections of land, the proceeds from which are paid into the permanent school funds of these states. The United States Office of Education is the chief advisory authority on education for the entire country. For particulars regarding the general trend of education in the United States see article EDUCATION, REVIEW OF; the subsection *Education* in the articles on the various states and other possessions; and COLLEGES AND UNIVERSITIES.

Religion.—The Constitution states that "no religious test shall ever be required as a qualification to any office or public trust under the United States" (Article VI, Clause 3), and according to the First Amendment "Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof." Church and state have accordingly remained separate in the United States, where all religious faiths function freely. According to the Census of Religious Bodies made by the Department of Commerce in 1936 there were 256 denominations reporting membership from 199,302 local churches, as compared with 212 denominations in 1926 reporting membership from 232,154 local churches. The total church membership in 1936 was 55,807,366, as compared with 54,576,345 in 1926, and of the total 1936 church membership, 19,914,935 were Roman Catholic, 4,641,184 were Jewish, and practically all of the remainder were members of various Protestant denominations, of which Negro Baptists formed the largest group, with a membership of 3,784,464, followed by the Methodist Episcopal Church, with 3,509,763 members. There were five women church members to every four men members in 1936.

See also articles on leading churches or denominations: ROMAN CATHOLIC CHURCH; PROTESTANT EPISCOPAL CHURCH; BAPTIST CHURCHES, etc.

Agriculture.—See the following articles for detailed information on this subject: AGRICULTURAL ADJUSTMENT AGENCY; AGRICULTURAL RESEARCH ADMINISTRATION; AGRICULTURE, REVIEW OF; COMMODITY CREDIT CORPORATION; FARM CREDIT ADMINISTRATION; FARM SECURITY ADMINISTRATION; FEDERAL CROP INSURANCE CORPORATION; FOREST SERVICE, U.S.; GRAZING SERVICE, U.S.; INFLATION AND PRICE CONTROL; LUMBER; MEAT PACKING; RECLAMATION; SOIL CONSERVATION SERVICE.

Mineral Production.—See CHEMISTRY; GEOLOGICAL SURVEY, U.S.; METALLURGICAL ADVANCES; MINERALOGY; MINES, U.S. BUREAU OF; PETROLEUM; COAL; COPPER; IRON AND STEEL; also names of other specific minerals.

Foreign Trade.—According to a Department of Commerce bulletin issued on Sept. 12, 1945, exports of domestic merchandise including lend-lease amounted in value to $6,569,355,000 (69.5 per cent lend-lease) for the first seven months of 1945, as compared with $8,543,621,000 (81 per cent lend-lease) for the same period in 1944. General imports during the first seven months of 1945 totaled $2,466,725,000 in value, as compared with $2,343,785,000 for the same period in 1944.

Defense.—See the following articles: ARMY OF THE UNITED STATES; COAST GUARD, U.S.; MARINE CORPS, U.S.; NAVAL PROGRESS.

Communications.—See articles on HIGHWAYS; AERONAUTICS; CANALS; FEDERAL COMMUNICATIONS COMMISSION; PUBLIC UTILITIES; RADIO; RAILROADS, AMERICAN; TELEPHONE PROGRESS.

THE UNITED STATES IN 1945.

American experience during 1945 was divided into three periods, by two historic dates: May 7, which brought official announcement that Germany was surrendering, and August 14, when Japan followed suit. Within the first and second of these periods there befell to each another important date, for April 12 brought the death of President Roosevelt and August 6 gave news of an undreamed-of weapon. All four major events caught the people off balance; although they had been confident of ultimate victory, Germany's big push in December had been taken to mean a lengthier fight in Europe, and military prophets thereafter foretold an additional year or two of struggle in the Pacific.

Worse, there was complete surprise and shock, totally unprepared for, in Roosevelt's passing and in the dropping of the atomic bomb. These events transpiring suddenly, the violence of their impact was not cushioned by adequate preparation for them; and as the whole world—not just the United States—was struck full force by these occurrences, there was little of familiar stability left anywhere.

It is scarcely surprising, therefore, that the third period of 1945—that between August 14 and December 31—was not marked by orderly progress in reconversion to peace. The emphasis shifted sharply, as the end of the war came, from interest in economic production for war, to interest in manipulation for gains during reconversion. The shift was hasty, self-centered in the main, and widespread. It became characteristic of peoples and governments all over the globe, marked by fumbling, by a conflict of rival purposes which at the time defied attempts to bring order out of chaos. Indeed, the twelve-month as a whole might well be called "The Year of Confusion."

Before Germany Acknowledged Defeat.—At the outset, the administration was taking no chances of being caught short, again, in war facilities. The president submitted in January a budget which assumed that the conflict in both theaters would continue through 1946; and pleas were renewed for a tightened war effort. Full manpower, the nation was urged, must be employed in production at home and replacement of casualties abroad. Word passed around that essential industries, including airplane production, were lagging behind their scheduled goals. Such industries were placed in "categories" to protect production; servicemen were loaned by army and navy to expedite making of critical matériel; deferred men, leaving jobs without permission, were warned of induction into service; and there was talk of forcing 4-F's into war work or limited military service or combat. Roosevelt asked Congress to pass a "National Service Law" to apply to ages 18–45 the principle of "work or fight"; but this aroused opposition from some labor and educational groups, and congressional opponents of it exposed various instances of wasted manpower in military sectors, such as the navy yards. A bill making nurses subject to draft was approved by a House committee.

The War Production Board (WPB) was necessarily prominent in this picture. It shifted manufacture of reconversion machinery and tightened controls over lumber and some other short items. The Agriculture Department and Office of Price Administration (OPA) struggled to control shortages of meat, cigarettes, butter, bacon, sugar, and soap—shortages which stretched long queues of would-be buyers out from counters, through doorways and down the streets. Sugar rations were cut sharply. To save electric power WPB decreed a "brownout" which turned out the lights in signboards, showsigns, marquees, etc. With OPA, WPB curbed the production and prices of clothing and textiles, prominent in lend-lease and military shipments. To protect the domestic economy and the war effort, an "inter-agency committee" undertook to co-ordinate foreign shipments, which continued heavy with the Lend-Lease Act extended a third time. The

borrowing power of the Commodity Credit Corporation was raised; and, as the cost of the war approached $275,000,000,000, Congress hoisted the highly elastic "debt limit" to $300,000,000,000. The Office of Defense Transportation (ODT) canceled train-runs which were little used, or seasonal, or which served only pleasure resorts; conventions of more than 50 persons were frowned upon.

Whatever the shortages of material and manpower, there was no shortage of labor disputes. As late as April 20 the AFL and the CIO reaffirmed their "no-strike" pledge, pending complete military victory; but "unauthorized" strikes multiplied and the government occasionally took temporary control over an industry. Prominent examples of government operation included a group of 72 bituminous coal mines, returned to their owners in mid-February, and the establishment of wage increases for employees of Montgomery Ward, through army operation of that large business.

Apprehensive of widespread, postwar unemployment, which was being predicted on all sides, organized labor vigorously undertook to forestall hardship through protective legislation on unemployment compensation, full employment, and guaranteed wage minimums. Around a "Wagner-Murray Full Employment Bill," introduced as early as January 22, controversy raged all year. In February labor staged a World Trades Union Conference (which the AFL refused to attend) at Paris; and the WLB awarded a minimum wage of 55 cents per hour to 50,000 northern and southern textile workers. Against the "Little Steel" formula of stable wages labor kept up a heavy barrage, waging a war of statistics, assertion and political pressure, with greater facility, skill and effect than an opposing war waged by the industrial management group.

The astounding drive of the Allies into and across Germany in March and April put America's accent back on reconversion, although Germany's surrender waited until early May. For example, on manpower the White House in March was prophesying a 31 per cent drop in draft calls after July 1; and in April redeployment of men and matériel to the Pacific was begun. On production, April brought plans for cutbacks and for restarting the reconversion machinery prematurely set in motion the previous fall and stopped by the German drive westward. Heads of OPA, OES (Office of Economic Stabilization), WFA (War Food Administration) and WLB on April 7 sounded a warning note; they said that there was danger in relaxation of price and wage controls during the transition period. But by May 4 the WLB had apparently forgotten its own warnings and was emphasizing collective bargaining and speed in reconversion. Whether or not this shift was due in part to the change of administration was not yet known; at any rate Truman had been elevated to the presidency a scant three weeks when he began initiating and endorsing proposals for wage increases. The national shift—from emphasis on production to emphasis on wages—gathered momentum through the three remaining months of the Pacific war.

Whatever Roosevelt may have planned as reconversion policy, he was denied the opportunity to try to carry it out. He had completely exhausted his physical reserves by active leadership in a global war; and when he was attacked by a cerebral hemorrhage, on the afternoon of April 12 at Warm Springs, Ga., he succumbed within three hours. Although the newsreels of his February conference with Stalin and Churchill in Yalta (see WORLD POLITICS) had shown him thin and worn, the good health propaganda of the 1944 campaign and of his publicity staff had left the nation unprepared for the blow. Along the route of his funeral cortege in Washington April 14, not less than 350,000 persons attested their respect and, in many cases, open grief; many millions more, via radio, attended the services in the White House that day and the burial services the next morning at Hyde Park. Present was the newly installed chief executive, sworn in April 12.

While Finishing the War with Japan.—When the people of the United States learned on May 7 that the German surrender was official and unconditional, they heard what they had been expecting to hear for a number of days. It was an hour of great triumph and rejoicing for the nation; but many an American was saddened by regret that the news of victory over the Nazis could not have been spoken by the president who had led the fight against them. Roosevelt's death ensured that political leadership, in the tasks of concluding the war and reconverting to peace, would not be the same as had been intimately identified with prosecution of the conflict abroad and at home and laying the foundations for world peace. The nexus was broken.

Within four months two thirds of the Cabinet responsibilities had been reassigned. Only Secretary of the Navy Forrestal, Secretary of the Interior Ickes and ex-Vice President Wallace, whom Roosevelt recently had succeeded in elevating to the Commerce Department, remained. Attorney General Biddle of Pennsylvania was succeeded by Thomas C. Clark of Texas; Secretary of Agriculture Wickard of Indiana by Clinton P. Anderson of New Mexico; Secretary of Labor Perkins of New York by Lewis B. Schwellenbach of Washington state; Secretary of the Treasury Morgenthau of New York by Fred M. Vinson of Tennessee; Secretary of State Stettinius of Virginia by James F. Byrnes of South Carolina; Secretary of War Stimson of New York by Robert P. Patterson of New York; Postmaster General Walker of Pennsylvania by Robert E. Hannegan of Missouri, new chairman of the Democratic National Committee.

Political aspects of appointment changes came more into the open as partisanship was divested of the cloak of patriotism by the approach of peace. The Senate, wary of Wallace's "spendthrift New Deal policies," would not confirm him to the Commerce portfolio until after the lending agencies were removed from it. In keeping Wallace and in appointing Byrnes, Truman followed the unwritten law that a successful nominee must find place for his chief contenders; his own nomination as vice president in 1944 had come only after the CIO had refused to consent to that of Byrnes, had failed to get its first choice, Wallace, and had then accepted the 60-year-old Missouri Senator. He inclined to name congressional friends; and a geographical shift to the westward frequently was noticeable in important Cabinet and non-Cabinet nominations. Numerous "under" secretaries were changed, but there was no great shift in personnel below the policy-making level, for Truman was a loyal party man and his predecessor had enjoyed twelve years of opportunity to fill the patronage with Democratic faithful.

As he surveyed the sprawling aggregation of

bureaus and agencies which in many cases duplicated functions within the executive branch of the government, Truman became convinced that they should be reorganized in the interests of efficiency and economy. Within the State Department, Byrnes made a reorganization and gathered under his wing the hitherto separate offices of War Information and Co-ordinator of Inter-American Affairs. To the Secretary of Agriculture was transferred authority over the War Food Administration and the OPA, with the life of the latter extended until July 1, 1946, after a struggle. But Congress hesitated to grant Truman's plea for authorization in a broader overhauling. Some members had pet agencies which they wished to protect and many believed that good government required that certain functions should not be subject to the hazards of political manipulation by successive administrations. Finally, in December 1945, Congress passed a Reorganization Act exempting the Interstate Commerce Commission, the Security and Exchange Commission, and some other vital agencies from presidential interference. Shortly before this law was enacted, Congress passed a measure requiring government corporations to be audited and budgeted in a business-like manner.

Between surrenders — May 7–August 14 — most of the reconversion plans requiring to be perfected failed to get adequate attention. Presidential proposals for broad employment and social security legislation were seriously questioned and the dog days of Washington's summer climate oppressed Congress. In the domestic field, Congress raised the pay of federal employees 15 per cent and cut their hours from 48 to 44 weekly. It extended one year the Fair Employment Practices Committee, against strong southern opposition. Selective service also received a year's extension; but the compulsory peacetime military training asked by the War Department and the president was blocked by the combined opposition of the CIO, AFL, educators, and persons fearful of a military caste. These various laws may have been to some extent facilitated by committee changes resulting from the 1944 election. It had abstracted, from Congress and from their seniority assignments, such opponents of "New Deal" legislation as the Democrats:— "Cotton Ed Smith" of South Carolina, isolationist Reynolds of North Carolina, Clark of Missouri and Dies of Texas; and the Republicans, Nye of North Dakota, Holman of Oregon, Danaher of Connecticut and Fish of New York.

Much other legislation was needed, but there was not enough public opinion behind it to hold the House in Washington; the Representatives recessed July 21, planning to stay away until October 8. The Senate was no less eager to get away but more bound. It stayed two weeks longer, to handle the international business for which public pressure was very strong. The previous January the House, by the narrow vote of 207-186, had made permanent the controversial "Committee on Un-American Activities"; but the Senate had become so conscious of the rising and vocal demand for American co-operation with other nations that in the short space of ten days —July 19-28 inclusive—it accepted four propositions of international significance.

The Senate provided for United States participation in the Bretton Woods project for an international fund and bank, 61-16; the United Nations Charter, 89-2; and the United Nations Food and Agricultural Organization. Also, the Senators swelled the lending power of the Export-Import Bank by $2,800,000,000. The United Nations Charter was ratified by enough powers to put it into effect by October 24. Bretton Woods went into effect December 27 when, Britain and France having been promised loans, their representatives and those of 26 lesser powers signed documents confirming ratification. Few, if any, liberal elements had failed to lobby for international co-operation and all four of the organizations had been largely devised by American citizens. In addition, foreign governments, during the fiscal year closing June 30, 1945, had been expending the tidy sum of $5,000,000,000 on propaganda to Americans. Having discharged the four most pressing mandates, the Senators recessed, planning also to remain away until October 8.

There was no leaving the job, for Americans charged with handling the defeated Nazis or the fanatical-fighting Nipponese; and so the home front battle—over transportation, manpower, production, prices and wages in wartime —continued whether or not Congress was kept on the job. Partly because it was scarcely as hard fought as before May 7, the home front battle was marked by less unified effort and more bitterness. Redeployment of military personnel to the Pacific theater was the first consideration. It brought draft deferment for westerly railroad workers, loan of troops for train operation, limitation of civilian Pullman reservations to five days and to trips longer than 450 miles, and expansion of airplane transport. The Office of Defense Transportation complained that the army neglected to give the ODT advance information sufficient to enable it to arrange for the needed transcontinental trains. An incident in which United States soldiers in day coaches saw a train of prisoners in Pullmans made headlines.

Some manpower controls had been relaxed three days after Germany surrendered; but the shortage of farm help and farm machinery, became so acute by midsummer that Secretary Anderson warned Americans that they could not feed the world, that they must eat less and could expect no relief short of a year. Meat was so scarce in mid-June that 84 per cent of the independent retail stores in 56 large cities had for sale no pork loins or hams: 85 per cent no bacon; over 86 per cent no veal; 73 per cent no beef-steaks or roasts. The army cut its meat quota, virtually all lend-lease and relief shipments of meat were halted from July 1 to September 30, and ration rates of fats (like those of sugar) were raised. On wool, new restrictions were imposed and the disappearance of low-price clothing lines remained an all-year problem. However, Germany's surrender was the signal for ending controls on some 1,200 civilian items, including use of electricity and DDT.

Unfortunately, the currency supply expanded faster than goods, making price control increasingly difficult; at least the black market in gas and fuel oil was blown up, when government sleuths learned to detect re-used ration stamps. Income payments were subsiding from their all-time February high; but, as late as July, average weekly earnings in manufacturing were 95.9 per cent more than in January 1939. The price rise of the intervening six years climbed in "living essentials" 31 per cent, food 51 per cent, clothing 46 per cent, house furnishings 45 per cent, miscellaneous goods and services 24 per cent, fuel, electricity and ice, 14 per cent; but rents only 3.8 per cent. All-time highs featured government spending for war, said to exceed $100,000,-

000,000, in the year ending June 30, 1945, and $300,000,000,000 since 1940. In those five years the United States had spent more than $50,000,000,000 abroad, receiving $8,800,000,000 in goods and services in return. As less than half the government expenditures were met by taxation, bond issues multiplied. The Seventh Drive in July was set for $14,000,000,000 and obtained $26,313,000,000. Irrationally enough, the public demanded tax cuts as the debt and inflation grew; this made tax reduction as good politics as it was bad bookkeeping.

It was in the labor field that statistics found their fullest employment; first they were used to cry down the "Little Steel" formula as unfair in view of rising living costs; second, to cry up corporation profits as justifying a rise in wages without one in prices. The possibility of using corporation profits to lower the cost of living to the general public did not seem to enter the range of interest, regardless of the possible aid it might prove to exports and employment. Since more than one half the nation's product had been devoted to war, it was not surprising that July employment was 1,340,000 below a year earlier, and that a further fall was forecast continually. Militant labor staged 500 strikes in July; August stoppages were heaviest in the highly industrialized states of Pennsylvania, Michigan and Ohio with "unauthorized" strikes in such vital industries as hard and soft coal, ships, oil, meat-packing, trucking, rubber, engines, and automobiles. Management felt none the easier for labor's campaign to unionize shop foremen, nor for the $418,000,000 stacked in union coffers. Employers complained because unions were not forced to pay taxes, to account for outlays, nor to eschew strikes during the life of their contracts.

Thus, warfare on the home front was assuming ever more serious proportions, when suddenly, August 6, President Truman and the War Department announced that henceforth conflicts between nations might be fought with materials 20,000 times as powerful as TNT! Just the day before, the great Japanese war-industry center of Hiroshima had been devastated, in a mere moment of time, by an atomic bomb manufactured in the United States. It had annihilated 60 per cent of a city of 375,000. On the 9th, the city of Nagasaki was similarly wrecked and Russia declared war on Japan. August 14 it was announced that Nippon was suing for peace. That day came the psychological end of the Pacific war, although delays in American occupation of Tokyo and in official surrender ceremonies postponed the naming of an official V-J Day until September 2.

After V-J Day.—The horrendous possibilities in the atomic bomb might have been expected to raise an overwhelming demand from the public for improved machinery for world peace; on the contrary, only a small minority, chiefly scientists and liberals; concentrated their talents on this imperative need. The United States had emerged from the war "top dog," for the nonce, of all nations. How soon would the responsibilities of that position be realized? The call to international leadership was superficially answered by generous refilling of the purse of UNRRA and by resuming heavy shipments of food abroad; but the main emphasis lay on narrower aspects of security. Vision seemed lacking to grasp the broader possibilities of America's opportunity to devise something better than "power politics."

The clamor raised by the vast majority in America, as elsewhere, was over their respective prospects for bread, butter and jam. Most of the draftees wanted to scramble home and get back into jobs and civilian clothes; their families deluged their congressmen with demands for their immediate return. Little was said of the possible harm which a too-hasty demobilization might do to prospects for permanent peace in Europe and Asia. So, the military services were forced to requisition all possible ships and planes, to cut discharge "points" again and again, and to bring Johnny and Mary flying and sailing home by the thousands.

With them came American prisoners of war, among the most notable, Lieutenant General Wainwright. They warned of an undying enemy hatred, of an eternal vigilance which must be the price of safety. They were heard with respect, but not with too much thoughtful attention. Such public questioning as there was after V-J Day developed principally along three lines. Why were we caught short at Pearl Harbor? Would we be safer if all our military services were placed under a single "Department of National Defense?" Should, or could, we hoard our "know how" on the atomic bomb? The official technique was to call Congress back to Washington September 5 and to assign the problems to congressional committees, for them to find answers through hearings conducted after the fashion of party politics. Use of dispassionate, nonpartisan, fact-finding commissions was avoided.

While the possibility of a Third World War was being considered rather cynically at the center of politics, Washington, demobilization was being pushed so fast and furiously over the nation that confusion was worse confounded. There was a terrific rush to end wartime controls indiscriminately, immediately if possible. Some of the things ended, obviously could be dispensed with fairly well: these included recruitment of Wacs and Waves, news censorship, which brought thrilling revelations of Allied and enemy technical advances, military set asides and war contracts.

Not quite so clear was the desirability of precipitate ending of such things as lend-lease (for which loans were substituted in some cases), transportation restrictions, federal authority over employment services, taxes on excess profits and low incomes, all rationing except for sugar and tires, and, most important, manpower and production controls practically in entirety. The chaotic conditions which soon developed raised the question of whether or not the national economy was yet equipped to run without some of these aids. Every government control had its particular opponents, who were set to end that control by use of political pressure and without much regard to the circumstances of reconversion. Those controls, which it was premature to abandon, were not likely to be retained, even if some few people did draw attention to such signs of danger as continuing scarcity of needed goods, mounting inflation and chaotic employment conditions. Only a national leadership, possessed of both vision and great political influence, could make reconversion orderly. Such leadership was slow to emerge.

The dire need and the deplorable lack were conspicuous in industry as well as in politics, in the United States as well as abroad. The solid foundation of military victory had rested on America's industrial strength, which some informed observers said would have enabled the nation to win the war singlehanded, if necessary. But that strength was also badly needed for peacetime conversion and there it was tempo-

rarily hamstrung. In this regard the United States was defeating its own ends during the closing months of 1945.

The administration took the position that wages could be raised approximately 30 per cent without hoisting prices much above the 1942 level. The added wage costs were supposed to be absorbed by the manufacturer or, if he were allowed a rise in his charges, by the middleman or retailer. Management insisted that prices must rise with wages; middlemen demanded relief from the "squeeze," and retailers claimed that they could not stay in business if they had to do the "absorbing." Some economists opined that the emphasis upon wages and prices overlooked production—that any scheme which reduced output thereby retarded reconversion.

Reduced and retarded they were. Unemployment and strikes increased. About half the workers who were laid off by cancellation of war contracts tended to refuse to enter jobs available in occupations paying less than their former war work. Strongly intrenched unions insisted that swollen war profits equipped industry to keep wages at wartime levels for peacetime production, and they struck to force either management or government to grant their contentions. Consequently, the much-vaunted "industrial capacity" which was supposed to have doubled during the war, failed to provide quickly the long-awaited civilian goods which were supposed to take the sting out of reconversion.

The Truman administration delegated the solution of the riddle to the parties at issue, stating that government action would be withheld pending their effort. They met in a "Labor-Management Conference" through much of November, without finding middle ground on which to rebuild production, and against a background of strikes growing in number and scope. In its struggles to develop a well-rounded labor policy, the federal government sought to accomplish three things: (1) increase the bargaining power of workers, (2) protect the worker's right of self-organization and (3) facilitate peaceful settlement of disputes. The first tended to prevail when in conflict with the other two. Existing labor laws were being administered in favor of large bargaining units (for the government must determine the bargaining unit) which usually was the CIO or AFL. This worked to the disadvantage of minority labor groups, with whom the employer was forbidden to bargain; but those groups could use strikes, picketing and boycotts to interfere with the rights granted another labor organization representing the majority of the workers in a bargaining unit. The many could be forced to quit work by the few.

While various types of machinery had been set up to settle labor disputes peaceably, in practically all instances labor had a free right to choose whether it would use this machinery. Its right to strike was not really limited or restricted in order to encourage its resort to peaceful settlement. It was not prevented from using strikes, picketing, and boycotts as weapons for attaining any objective, regardless of contract pledges against the use of such weapons, and usually regardless of whether such use greatly restrained interstate commerce, or violated the rights of individuals to life, liberty and property. When statutes ran counter to use of such weapons, they were very frequently left unenforced. For the nonce at least, government policy on the whole was doing little to assure labor's fulfillment of collective bargaining agreements.

Meanwhile, Congress marked time, while the cost of living rose for the general public and government expenditures caused floating of an 8th drive for a "Victory Loan" of $11,000,000,000; individuals were called upon to purchase $4,000,000,000 and non-bank investors the rest, in an attempt to retard inflation. Congress was delaying action of both of the major labor measures before it. A Ball-Burton-Hatch bill proposed to swing labor legislation back to a central position. The pendulum had swung too far to the right, in favor of management, before 1900; too far to the left, thereafter. The B-B-H bill sought to hold both labor and management responsible for the general welfare; this measure suffered for lack of a strong consumer lobby. The Wagner-Murray Full Employment bill, which called for government maintenance of employment when private industry failed to achieve it, won labor endorsement and therefore had better chances of enactment. However, labor and the administration found that the enlarging strike situation marred their position with some members of Congress who were less responsive to labor constituencies. There were threats of an all-out campaign to defeat such legislators in 1946.

Accompanying the industrial reversion was a political reversion. Machine rule seemed to triumph in the November elections in Boston, Detroit and New York City; and the Republicans searched in vain for a new Messiah to lead them.

"What price victory?" asked some thoughtful educators. Casting about for reasons and remedies, some of them attributed the adult warfare in industry, and also a rising crime wave among youth, to a wrong emphasis in education. Had the schools given too much stress to individual rights and too little to citizen duties? Working for a greater sense of responsibility, nearly all the great grade school systems undertook curricular changes. On the college level, a return to basic principles, with more "required" courses and fewer "electives"—in order to ensure a better "general" education—had been urged in the July Harvard report titled, *General Education in a Free Society.* Yale and other colleges were of somewhat similar mind. Schools on all levels undertook to make education attractive to demobilized GI's who were interested in taking advantage of the GI Bill of Rights enacted in 1944 to ensure financial aid for completion of their education.

The possibility that advanced knowledge might throw light on everyday national problems never had received adequate attention in the great republic, where many a man was proud that his schooling was limited to very little. Indeed, almost all the great forces in our culture had been geared to prevent serious discussion of public affairs. The atomic bomb was one of many Second World War influences which increased general appreciation of advanced learning. President Truman in his September message urged that the government admit its obligations to higher learning and establish a National Research Foundation. Many persons anxious over international trends were striving to obtain more serious discussion of public affairs.

Discussion of one sort and another certainly was rife in this "Year of Confusion"; and much of it was becoming deadly serious. Perhaps from it Americans might take into 1946 a greater sense of the responsibility inherent in their power. The benefit to the nation, and the world, might prove incalculable.

JEANNETTE P. NICHOLS,
Author, Twentieth Century United States.

Chronology

The following chronological list presents a summary of the principal events of the United States during the year of 1945:

Jan. 1—Bureau of Census reports more than 155,000 separate governmental bodies are functioning in U.S.

Jan. 3—War Production Board Chairman J. A. Krug announces that the U.S. turned out 96,369 airplanes of all types in 1944.

Seventy-ninth Congress convenes; House of Representatives re-elects Sam Rayburn of Texas as speaker.

Jan. 18—Alberto Tarchiani appointed Italian ambassador to Washington.

Jan. 20—Franklin Delano Roosevelt inaugurated president of the United States for fourth term.

Jan. 22—President Roosevelt nominates Henry Wallace to be secretary of commerce.

Feb. 11—President Roosevelt, Prime Minister Churchill, and Marshal Stalin sign report of Big Three Conference held at Yalta in Crimea, February 4–11.

Feb. 19—House of Representatives passes bills to establish ranks of general in Marine Corps and admiral in Coast Guard.

Feb. 20—White House discloses that President Roosevelt conferred with Prime Minister Churchill in Alexandria, Egypt, after Yalta Conference, when Mr. Churchill gave reassurances of active British aid in Pacific. President Roosevelt also conferred with King Farouk of Egypt, Emperor Haile Selassie of Ethiopia, and King Ibn Saud of Saudi Arabia.

Feb. 26—Nationwide midnight curfew for night clubs, bars, and places of amusement goes into effect.

Feb. 28—State Department signs lend-lease agreement with France; maximum amount stipulated, $2,575,000,000.

Mar. 1—Henry A. Wallace wins Senate confirmation as secretary of commerce by vote of 56 to 32.

Mar. 2—President Roosevelt approves the Act of Chapultepec adopted at Mexico City.

Mar. 8—U.S. formally re-establishes diplomatic relations with Italy when President Roosevelt accepts credentials of Ambassador Tarchiani.

Mar. 12—Thousands of AFL union members go on strike in major motion picture studios in Hollywood, Calif.

Mar. 20—U.S.S. *Midway*, heaviest, strongest, and fastest carrier ever built, christened at Newport News, Va.

Mar. 26—Senate passes legislation raising national debt limit from $260,000,000,000 to $300,000,000,000 and sends bill, already approved by House, to president.

Apr. 9—U.S. and other American republics resume diplomatic relations with Argentina.

Apr. 10—Senate passes and sends to White House bill to extend Lend-Lease Act for another year from June 30, 1945.

Apr. 12—Franklin Delano Roosevelt (63) dies suddenly of cerebral hemorrhage at 4:35 P.M. (EWT) at Warm Springs, Ga., after serving for 12 years and 40 days as president of the United States. Vice President Harry S. Truman of Missouri sworn in as 32d president of the United States by Chief Justice Harlan F. Stone, in the White House at 7:09 P.M.

Apr. 13—State Department announces removal of all but minimum governmental restrictions from trade with France.

Apr. 15—Franklin D. Roosevelt, late president of the United States, is buried in the garden of his ancestral estate at Hyde Park, N.Y.

Apr. 17—President Truman signs third extension of Lend-Lease Act, extending it for 12 months from June 30.

President Truman nominates John W. Snyder, vice president of First National Bank of St. Louis, as federal loan administrator.

Apr. 18—Senate ratifies Mexican water treaty by 76–10 vote.

Apr. 23—Dr. Nicholas Murray Butler presents his resignation, to take effect Oct. 1, 1945, after serving for 44 years as acting and titular head of Columbia University.

Apr. 25—United Nations Conference on International Organization, comprised of diplomats from 46 United Nations, opens in San Francisco, Calif.

Apr. 27—House passes and sends to president the Senate amendment to draft extension bill, barring army from ordering 18-year-old inductees into combat until they have had at least 6 months military training.

Apr. 29—The 45,000-ton aircraft carrier *Franklin D. Roosevelt* is christened at Navy Yard in Brooklyn. Built at cost of $90,000,000.

May 2—Associate Justice Robert H. Jackson of the Supreme Court appointed by President Truman as chief counsel of the U.S. in preparing and prosecuting charges against Axis war criminals.

President Truman announces that Frank C. Walker has resigned as postmaster general, effective June 30, and Robert E. Hannegan, Democratic National Committee chairman, has been appointed to the post.

May 8—President Truman announces final and unconditional surrender of Germany.

Secretary of the Treasury Morgenthau announces that U.S. war cost has reached total of $275,703,000,000.

May 9—President Truman signs bill extending Selective Service Act.

Fred M. Vinson, war mobilization and reconversion director, lifts midnight entertainment curfew and ban on racing.

May 19—Fritz Kuhn, once leader of German-American Bund, ordered deported to Germany as undesirable alien.

May 21—Senate approves reappointment of David E. Lilienthal as Tennessee Valley Authority director.

May 23—President Truman carries out major reorganization of Cabinet by accepting resignations of Attorney General Francis Biddle, Secretary of Labor Frances Perkins, and Secretary of Agriculture Claude R. Wickard, and immediately appoints Thomas C. Clark of Dallas, Texas, now assistant attorney general, to be attorney general; Judge Lewis B. Schwellenbach of Spokane, Wash., as secretary of labor; and Rep. Clinton P. Anderson of New Mexico as secretary of agriculture; Claude R. Wickard is nominated as director of Rural Electrification Administration.

May 24—War Production Board allows distilling industry to return to making beverage alcohol during month of July in third 4-week holiday from war production since August 1944.

May 28—Senate passes appropriation bill carrying $2,500 expense account for House members but defeats by 43–9 vote amendments to give similar funds to senators.

May 31—Senate confirms Lewis B. Schwellenbach as secretary of labor.

June 1—Senate confirms Clinton P. Anderson as secretary of agriculture.

June 7—House decides by 206–152 vote to keep its original $2,500 annual expense account and sends bill to White House.

Gen. Omar N. Bradley, commanding general, Twelfth Army Group, under General Eisenhower, designated by President Truman to succeed Brig. Gen. Frank T. Hines as administrator of veterans' affairs.

June 14—Senate confirms nomination of Thomas C. Clark as attorney general.

June 21—Senate confirms nomination of Claude R. Wickard as rural electrification administrator by 56–6 vote.

June 26—United Nations Conference in San Francisco adjourns after 9 weeks, following signing by 50 nations present of United Nations Charter.

June 30—President Truman appoints former Justice James F. Byrnes secretary of state to succeed Edward R. Stettinius, resigned.

July 5—Owen D. Roberts of Pennsylvania retires as associate justice of U.S. Supreme Court, effective July 31, after a service of 15 years.

Thurman W. Arnold resigns as associate justice of U.S. District Court of Appeals, effective July 10.

Henry Morgenthau, Jr., resigns as secretary of the treasury, making sixth change in Cabinet since Mr. Truman took office as president.

July 7—President Truman sails from Norfolk, Va., naval base to Big Three Conference near Berlin, accompanied by Secretary of State James F. Byrnes and large staff.

July 17—Senate confirms Fred M. Vinson as secretary of treasury, and debates Bretton Woods agreements.

July 18—Navy reveals U.S. fighting fleet now consists of 1,500 warships and about 100,000 vessels of all types, increase of 1,322 combatant ships, nearly all of which are in Pacific.

July 20—House accepts Bretton Woods bill and sends it to President Truman for signature. Senate approves House bill to increase lending power of Export-Import Bank by $2,800,000,000 to total of $3,500,000,000.

July 21—Senate approves American membership in United Nations food and agriculture organization.

July 27—Delegates to special national convention of Communist Political Association vote to disband that organization and reconstitute Communist Party.

July 28—U.S. Senate ratifies, 89–2, United Nations Security Charter.

July 29—Communist Party drops its political heads, Earl Browder and Robert Minor, and names new national officers headed by William Z. Foster.

Aug. 1—Federal expenditures for fiscal year ending June 30, 1946 estimated in revised budget at $85,288,000,000, an increase of $2,800,000,000 over January budget. Estimate of revenues cut to $39,007,000,000 from original estimate of $41,255,000,000.

Jet-propelled army P-80 Lockheed Shooting Star fighter plane flies from Dayton, Ohio, to La Guardia Field, New York, in 1 hour 2 minutes, record-breaking 544-mile trip.

Senate adjourns until October 8.

Aug. 2—President Truman, Prime Minister Attlee, and Premier Stalin issue joint communiqué on Big Three (Potsdam) Conference.

Aug. 5—U.S. and Swiss governments sign reciprocal air-transport agreement providing transit rights over their respective territories and airport facilities at New York and Geneva.

Hawaii Mars, largest flying boat in operation, sinks in Chesapeake Bay, 2 weeks after launching.

Aug. 6—President Truman announces that an atomic bomb, possessing more power than 20,000 tons of TNT, had been dropped by American airplanes on Hiroshima, Japan.

Aug. 7—President Truman returns to White House from Big Three Conference and confers with Cabinet.

Aug. 8—New code of international law is adopted by United States, Great Britain, Russia, and France, listing wars of aggression as crime against peace.

President Truman signs United Nations Charter.

Aug. 14—President Truman announces at 7 P.M. EWT that Japan has accepted terms of Potsdam declaration of July 26, 1945, which amplified Cairo declaration of 1943, thus ending the war. Japanese document was forwarded through Swiss Foreign Office at Bern and Swiss legation in Washington.

Aug. 15—Byron Price disbands Office of Censorship.

General Bradley sworn in as veterans' affairs administrator.

Office of Price Administration ends rationing of gasoline, fuel oil, oil stoves, and blue-point canned fruits and vegetables.

Aug. 16—T. V. Soong, Chinese premier, arrives in Washington for conferences with President Truman and James F. Byrnes.

Aug. 17—Office of Defense Transportation voids curb on travel to sports meets.

Aug. 21—President Truman orders end of all further lend-lease; notifies all Allied governments that they may obtain American supplies only on cash basis. Lend-lease program supplied Allies with $41,208,000,000 in goods and services.

Aug. 22—Gen. Charles de Gaulle arrives in Washington to confer with President Truman.

Aug. 30—President Truman urges Congress to write off $42,000,000,000 debt owed to United States from lend-lease, stating that to attempt collection of this money would threaten political stability of United Nations and help to sow "the seeds of a new world conflagration."

Sept. 5—Congress reconvenes.

Sept. 6—Senate unanimously votes, with approval of President Truman, for congressional investigation of Pearl Harbor disaster.

Concession for development of oil resources of Ethiopia obtained by Sinclair Oil Corporation.

Senate approves promotion of Lieut. Gen. Jonathan Wainwright to full general.

Sept. 9—Gen. Jonathan M. Wainwright, hero of Bataan and Corregidor, arrives in America after 40 months in Japanese prison camp.

Sept. 11—House of Representatives votes full inquiry on Pearl Harbor disaster.

Sept. 18—Henry L. Stimson, U.S. secretary of war, resigns; Robert P. Patterson, undersecretary, is nominated as his successor.

Sept. 20—President Truman terminates Office of Strategic Services; orders permanent foreign intelligence division created under State Department.

U.S. Senate unanimously confirms Senator Harold H. Burton's appointment as associate justice, U.S. Supreme Court.

Sept. 25—Senate confirms nomination of Robert P. Patterson as secretary of war.

Sept. 27—President Truman accepts resignation of Leo T. Crowley as Federal Deposit Insurance Corporation chairman; simultaneously abolishes Foreign Economic Administration.

Oct. 1—President Truman orders reorganization of the navy; calls, among other things, for abolition of position of commander in chief, United States Fleet; transfer of principal command to chief of naval operations.

Oct. 4—President Truman orders abolition of War Production Board and its replacement by new Civilian Production Administration, effective November 3.

Oct. 7—James W. Huffman appointed U.S. senator from Ohio by Governor Frank J. Lausche to succeed Harold H. Burton, now U.S. Supreme Court justice.

Oct. 9—War Production Board Chairman J. A. Krug reports U.S. produced more than $187,000,000,000 worth of weapons and supplies during the war.

Oct. 16—President Truman tells Congress Puerto Ricans should be allowed to vote now on question of independence, dominion status, statehood, or colonial status with more autonomy.

Oct. 17—John L. Lewis ends coal strike which began September 21, spread to 210,000 bituminous miners, and caused loss of 13,000,000 tons, with announcement that he is postponing efforts to win recognition for supervisory workers.

Russia signs agreement with U.S. for $350,000,000 to $400,000,000 of lend-lease goods, delivery of which was halted on V-J Day; contract calls for Russian payment within 30 years at 2⅜ per cent interest, with first payment beginning 9 years hence.

Oct. 24—Strike of 33 weeks in Hollywood studios ends upon orders of AFL executive council that it will settle jurisdictional dispute.

Oct. 25—General Motors workers vote 6–1 in favor of strike if necessary to obtain 30 per cent wage increase.

Oct. 27—In Navy Day celebration speech in New York City, President Truman outlines American foreign policy, stating U.S. will not recognize any government imposed upon any nation by force of a foreign power and that the U.S. will hold the atom bomb as secret trust.

Oct. 30—U.S. grants new Venezuelan government full recognition.

In radio broadcast President Truman outlines government wage-price policy, advocating higher wages for American workers but ruling that prices must be held stable.

Nov. 1—Four B-29's complete first nonstop flight from Japan to Washington in 27 hours 29 minutes.

Nov. 2—Provisional government of Hungary recognized by U.S. when State Department announces it will accept Hungarian Foreign Office veteran in Washington as minister.

Nov. 5—President's Management-Labor Conference opens in Washington, D.C., attended by Philip Murray, CIO president; William Green, AFL president; Secretary of Commerce Wallace; Secretary of Labor Schwellenbach; Eric A. Johnston, Chamber of Commerce president; Ira Mosher, National Association of Manufacturers president, and others.

Nov. 9—President Truman signs 1945 revenue bill, reducing income taxes by $5,920,000,000.

Nov. 10—Prime Ministers Attlee of Great Britain and Mackenzie King of Canada, and President Truman begin discussions in Washington on atomic bomb, and world affairs.

Nov. 12—Former Secretary of State Cordell Hull awarded 1945 Nobel Peace Prize for work in laying foundation of United Nations Organization.

Nov. 14—President Truman, Prime Ministers Attlee of Great Britain and Mackenzie King of Canada agree on turning over secret of atomic energy to United Nations Organization provided Russia clarifies her postwar aspirations and with other member nations agrees to throw her military potentials into same common pool.

Nov. 15—Federal Bureau of Censorship comes to an end.

Nov. 19—Rear Admiral J. O. Richardson, retired, chief of staff of Pacific Command until relieved on Feb. 1, 1941, by Rear Admiral Husband E. Kimmel, testifies before congressional Pearl Harbor Committee that he protested maintaining ships at Hawaii undermanned and ill-equipped after President Roosevelt expressed himself in 1940 as certain Japan would ultimately make a mistake compelling United States to go to war.

President Truman asks Congress for immediate action on 5-point legislative program of preventive and curative medical aid, including compulsory health insurance system under present social security program.

Nov. 20—B-29 establishes new nonstop record, flying 8,198 miles from Guam to Washington in 35 hours 5 minutes.

Nov. 21—United Automobile Workers, numbering about 180,000, go on strike in General Motors Corporation plants from coast to coast.

Nov. 23—Office of Price Administration ends rationing of all foods but sugar.

Nov. 26—Senate confirms nominations of Dwight D. Eisenhower as army chief of staff and Chester W. Nimitz as chief of naval operations.

Nov. 27—President Truman appoints Gen. George C. Marshall, retiring army chief of staff, as special envoy to China with rank of ambassador; accepts resignation from that post of Patrick J. Hurley who issued blistering denunciation of administration of American foreign policy by "professional diplomats."

Secretary of State Byrnes announces "unqualified adherence" by U.S. government to Uruguayan proposal for intervention in Western Hemisphere by American republics when one of them fails to fulfill its international obligations.

Nov. 30—Washington Labor-Management Conference ends with no outstanding or concrete results.

Dec. 3—President Truman asks Congress for legislation to outlaw strikes, while fact-finding board investigates dispute; president also creates board to deal with General Motors strike, appeals to automobile workers to go back to work.

Dec. 4—Henri Bonnet, French ambassador to U.S., announces signing of $550,000,000 loan agreement by France with Export-Import Bank, supplementing previous U.S. credit of about $500,000,000.

Dec. 5—Office of Stabilization administrator formally sets cost of living increase since January 1941 at 33 per cent; rules that manufacturers can base applications for price increases on wage increases up to that level.

Dec. 6—U.S. signs agreement to advance financial aid to Great Britain of about $4,400,000,000, at 2 per cent interest over 50-year payment period; agreement also includes writing off about $25,000,000,000 of lend-lease by the U.S., because of mutual victory benefits.

Agreement must be ratified by Congress.

U.S. and Italy enter agreement with regard to resumption of normal commercial relations between the two countries.

Dec. 8—National Council of United Automobile Workers rejects President Truman's fact-finding plan for strike settlement and General Motors Corporation's offer of 10 per cent increase.

Dec. 10—President Truman names 6-member group to represent U.S. on British-American Committee of Inquiry on Palestine question, with Judge Joseph C. Hutcheson, chairman.

Dec. 11—House approves conference report appropriating final $550,000,000 of first U.S. commitment to United Nations Relief and Rehabilitation Administration.

B-29 Superfortress *Dreamboat* makes 2,464-mile trip from Burbank, Calif., to New York City in 5 hours 27 minutes 8 seconds, shattering all official records for transcontinental flight.

Dec. 12—President Truman appoints fact-finding board, headed by Judge Walter P. Stacy, to look into General Motors strike.

Secretary of State Byrnes leaves Washington for Moscow for conferences with Vyacheslav M. Molotov, Soviet Foreign Commissar, and Ernest Bevin, British Foreign Secretary.

Dec. 13—Both houses of Congress pass and send to White House compromise bill granting President Truman power to reorganize Executive Department.

Electrical Workers throughout U.S. vote to go on strike to back up their demands for $2 daily wage increases.

U.S. invites 14 nations to meet in preparatory session for international trade conference, asking them to come prepared to negotiate agreements with U.S. for reciprocal lowering of tariffs.

Dec. 15—Gen. George C. Marshall leaves Washington for Chungking as special ambassador to China.

Dec. 17—Senate passes and sends to White House authorization for $1,350,000,000 more for United Nations Relief and Rehabilitation Administration.

Dec. 19—President Truman asks Congress to merge armed services into single department under civilian secretary with equal status for army, navy, and air forces.

U.S. makes plans to convert part of its remaining stocks of property abroad into self-perpetuating scholarship fund which will bring foreign students to this country and finance studies of Americans abroad.

By 31–30 vote Senate overrides administration requests and extends president's wartime power for 6 months instead of a year.

Congress approves United Nations Organization bill; President Truman signs it and appoints as American representatives and alternates to the general assembly Edward R. Stettinius, chief delegate, Secretary Byrnes, senior delegate, Mrs. Eleanor Roosevelt, Senator Tom Connally, and Senator Arthur H. Vandenberg.

Dec. 20—Office of Price Administration announces tire rationing will end in January 1946.

Senate confirms President Truman's delegates to first meeting of United Nations Assembly in London.

Dec. 21—Congress adjourns until Jan. 14, 1946.

Dec. 24—President Truman rejects $51,000,000,000 bill rescinding certain war appropriations and contracts because the measure carries a rider that would return the United States Employment Service to the states within 100 days.

President Truman pardons several thousand former federal convicts in recognition of their meritorious service in the armed forces during the war.

Dec. 26—President Truman names Fiorello H. La Guardia as his personal representative with the rank of ambassador at inauguration of Gen. Eurico Gaspar Dutra as president of Brazil.

Dec. 28—General Motors Corporation walks out of meeting of President Truman's fact-finding board, set up to consider the strike of the company's employees. The company based its refusal to co-operate on the ground that it was unable to do so as long as "ability to pay is to be treated as a subject of investigation, fact finding and recommendations."

Dec. 29—Secretary of State James F. Byrnes returns to Washington from Moscow Conference of Foreign Ministers of Great Britain, the Soviet Union, and the U.S.

U.S. Coast Guard will be returned from the navy to the Treasury Department on January 2 to resume peacetime police functions.

Joint Army-Navy Advisory Board created to work on atomic bomb project with Maj. Gen. Leslie R. Groves.

Dec. 31—Four of the five U.S. delegates to the first meeting of the General Assembly of the United Nations Organization, and an equal number of alternates, sail for London, where meeting will take place. The four delegates are: Edward R. Stettinius, Jr., Mrs. Franklin D. Roosevelt, and Senators Tom Connally and Arthur H. Vandenberg. Secretary of State James F. Byrnes, the fifth delegate, will follow in a few days.

War Labor Board goes out of existence; President Truman expected to name a wage-stabilization board to take its place until June 30.

William O'Dwyer sworn in as mayor of New York City to succeed Fiorello H. LaGuardia, who had held the office for 12 years.

President Truman signs bill authorizing expenditure of $160,000,000 to provide emergency housing for veterans and the families of service men. President also approved acquisition of a site at Buffalo, N.Y., for the erection of a 1,000-bed general hospital for the Veterans' Administration. Congress appropriated $10,188,664 for construction and $200,000 for the site.

UNITED STATES TREASURY. See TREASURY OF THE UNITED STATES.

UNIVERSITIES. See COLLEGES AND UNIVERSITIES.

UNO. See UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION.

URANIUM. See ATOMIC BOMB; METALLURGICAL ADVANCES.

URENA, Rafael Estrella, Dominican politician: b. Sept. 19, 1889; d. Ciudad Trujillo, Dominican Republic, Sept. 16, 1945. Señor Urena was provisional president of the Dominican Republic from Feb. 28, 1930, to May 16, 1930, after he had headed an insurrection that overthrew the regime of President Horacio Vasquez. As a young man, Urena taught school while studying law. He later became private secretary to General Vasquez and fought with him in the revolutions of 1912 and 1913. He was minister to France under the Vasquez regime, before breaking with Vasquez in 1930. When the insurgent forces under Urena marched into Santo Domingo in February of that year, the American minister, Charles B. Curtis, persuaded President Vasquez that his position was hopeless and induced him to name Urena to the post of secretary of the interior and then to resign. Under the constitution, Urena became provisional president, but as such was ineligible to succeed to the presidency. However, he was nominated by the Liberal Party for the vice presidency, with General Rafael L. Trujillo, the presidential candidate. They were elected on May 16, 1930, without opposition, and Urena was named secretary of foreign affairs. Differences later arose between Urena and Trujillo, and in 1931 the Chamber of Deputies voted to impeach Urena on charges of conspiring against the government. He fled to the United States but was allowed to return in 1935.

URUGUAY, ōō-rōō-gwī′. The smallest and most densely populated republic of South America, situated on the north coast of the Rio de la Plata between the Atlantic Ocean, Brazil, and Argentina, with an area of 72,153 square miles and a population (estimated, 1944) of 2,235,000. After many attempts which were successfully repulsed, the Portuguese finally succeeded in establishing settlements early in the 17th century, only to have them captured by the Spaniards some 100 years later. From 1726 to 1814 the country was a part of the Spanish viceroyalty of Rio de la Plata, subsequently annexed by the Argentine Confederation, and later becoming a province of Brazil during the period when Brazil was held by the Portuguese. In 1825, through armed revolt, Brazilian authority was overthrown, and an independent state proclaimed. The republic was inaugurated in 1830. Under the new constitution, adopted in 1934, the president is elected for a term of four years by the legislature, which consists of a Chamber of Representatives of 99 deputies and a Senate of 30 members, elected for four years by popular vote. The republic is divided into 19 departments. Juan José de Amézaga became president March 1, 1943. Principal towns are Montevideo, the capital (pop. estimated 770,000 in 1941); Paysandú (31,000); Salto (30,000), and Mercedes (24,000).

It is not generally realized that Uruguay is one of the most progressive of western democracies. The provisions of her social welfare laws, for example, are more liberal than those of most other countries in this hemisphere, including, in some respects, those of the United States. According to the pamphlet *Uruguay—Vigorous Democracy* published by the co-ordinator of inter-American affairs, Washington, D.C., "the fixing of wages and hours by law, the regulation of the labor of women and children, the care of mothers, child welfare, and socialized medicine, all form part of the general plan of Uruguayan social improvement. Farm laborers benefit by the same protection as other workers, with a minimum wage law which guarantees them higher earnings than those existing in many countries of the world. Uruguay's 8-hour working day law, enacted on Nov. 17, 1915, was the first in all South America."

Religion and Education.—There is complete separation of church and state and full liberty for all denominations. The majority of the population professes the Roman Catholic faith. There is an archbishopric at Montevideo as well as bishoprics at Salto and Melo.

Education is free, and primary education is compulsory. In 1943 there were 1,592 public schools with 4,981 teachers and 191,191 pupils; rural schools have 53,938 pupils; and 6,717 were enrolled in evening schools for adults. The University of the Republic of Montevideo was inaugurated in 1849. It had 19,197 students in 1937. There are 5 co-educational normal schools and numerous arts and trade schools. Federal appropriation for education in 1944 was 6,500,000 pesos.

Uruguay has been a pioneer in education. The country is the only one in the Western Hemisphere to offer free graduate courses in medicine, engineering, architecture, and the other professions. Elementary education has been both free and compulsory since 1877, and higher education is provided without charge in secondary schools, colleges and universities maintained by the state not only for Uruguayans but for foreigners also.

Army and Navy.—Uruguay has a small standing army, with a peacetime strength in 1938 of 808 officers and 7,108 other ranks (nominal war strength of 50,000), and a national guard. Service is voluntary, lasting from two to five years, with re-enlistment to the age of 44, in the Regular Army. Service in the National Guard is compulsory in the event of war from the age of 17 to the age of 45. The total strength of the entire guard is about 100,000 men. The military aviation school in 1937 had 45 planes, 8 instructors, and 320 officers and men. The naval forces consist of the torpedo gunboat *Uruguay*, the surveying vessel *Miranda*, three patrol vessels, 2 training ships, and a few auxiliary craft. A naval flying service is also being instituted.

Communications.—There are 2,611 miles of national highways, and 5,903 miles of departmental highways in Uruguay of which 323 miles are macadamized. The best roads are concentrated in the south, branching north, east, and west from Montevideo. Traffic between Buenos Aires and Montevideo is facilitated by an excellent highway and auto ferry service across the Rio de la Plata. There is more railroad mileage in Uruguay, in proportion to its size, than in any other country of South America. The total mileage of standard gauge railways open for traffic in 1941 was 1,477. The Rio de la Plata and the Uruguay River are the most important of the many waterways of the republic, providing more than 500 miles of navigable routes. Motor vehicles (estimate 1943) number 65,000. There were 48 long-wave and 5 short-wave radio stations, and 46,656 telephone instruments in Uruguay in 1940. Pan American Airways and a domestic service connect the major cities of the country with the United States and neighbor countries. Two other airlines, one Argentine and the other Brazilian, also maintain service in Uruguay.

Agriculture and Industry.—Stock raising, meat packing and agriculture are, respectively, the most important economic activities in Uruguay. The country consists mainly of undulating grassy plains, but of the total cultivable area, only about 10 per cent is under cultivation, for the country is given up almost entirely to grazing of large herds of cattle and sheep, the wool of which is of excellent quality. The latest livestock census includes 8,296,890 cattle; 22,000,000 sheep; 600,000 horses; and 308,000 hogs. The chief agricultural products are wheat, maize, linseed, and oats. The fruits grown are grapes, peaches, oranges, and pears. In the northern departments, deposits of lead, copper, silver, manganese, gold, iron, and lignite coal have been found but have not been developed commercially. Exports of wool from Montevideo from Oct. 1, 1944 to March 31, 1945, totaled 96,823 bales (approximately 483 pounds each). Meat production figures for the first quarter of 1945 fell below those for the corresponding period of 1944, largely because of the modification of preferential exchange. Cattle slaughter reached only 126,025 instead of the 142,207 estimated; and estimates for the second quarter of 1945 continued to be substantially below production for the same period in 1944. Leather shoe production decreased to 950,000 pairs in 1944 from an average of 1,485,000 pairs during the period from 1939 to 1941. Industrial production was estimated at 425,000,000 pesos in 1944 as compared with 400,000,000 in 1943, and approached the importance of livestock and agriculture, although the capital invested in land, livestock, and agriculture remained more than three times that invested in manufacturing.

Finances.—The budget for 1944 estimated receipts at 136,894,503 gold pesos, and expenditures at 136,900,000 gold pesos, and in 1943 preliminary receipts were 101,445,395 pesos and expenditures 121,093,857 pesos.

Foreign Trade.—Total imports in 1943 were valued at 63,807,357 U.S. dollars, while exports were valued at 100,021,697 U.S. dollars. The United States (25 per cent), Great Britain (10 per cent), and Brazil (17 per cent) were the principal suppliers of imports while the United States (54 per cent), and Great Britain (33 per cent) were the principal markets for Uruguayan exports. Of the $100,000,000 export total for 1943, meat and meat products accounted for $46,514,000, and wool for $39,270,000.

Foreign trade for the first 6 months of 1945 showed an export balance of $20,175,627, as compared with $9,751,954 for the similar period in 1944.

Principal Events.—On Feb. 15, 1945, Uruguay declared war on the Axis nations. Venezuela took similar action at the same time, Argentina then remaining the only Latin American nation at peace with the Axis. Uruguay became a member of the United Nations on February 24, when Ambassador Juan Carlos Blanco signed the declaration of that organization in Washington; and

on April 25, Uruguay was one of the 46 countries represented at the United Nations Conference at San Francisco. On April 4, nine persons were arrested in Montevideo on charges of constituting a German spy ring. An immense popular demonstration celebrating the fall of Berlin resulted in wild rioting in Montevideo on the evening of May 2–3, 43 policemen and 15 civilians being injured, and thousands of dollars worth of property being damaged when owners of the newspaper *El Día* refused to raise the Soviet flag beside those of the United States and Great Britain. The offices of another newspaper, *El Debate,* accused similarly of pro-Fascist sympathies, were also stoned. The demonstrators, 83 of whom were arrested, carried flags of the United Nations.

The year began with a building boom. Building permits, including repairs, granted at Montevideo during the first quarter of 1945, were valued at 8,471,000 pesos, a gain of 93.6 per cent over the value of the permits issued during the corresponding period of the previous year. Expenditures under the public works program totaled 14,888,000 pesos for the first quarter of 1945, as compared with 11,245,000 pesos for the same period in 1944. Production of meat improved greatly, the total number of cattle slaughtered in May being 107,964 as compared with 53,684 in April. The deficiency in rainfall affected agricultural output, but industrial production continued to gain. Prices rose steadily, not only for imported articles, but for milk, eggs, and potatoes; and the rapidity of the rise in living costs occasioned a number of strikes and increased tension in the field of labor.

On November 28, the text of a proposal made by the government of Uruguay to United States Secretary of State James F. Byrnes was released in Washington, D.C. The Uruguayan proposal outlined a method of collective security within the Western Hemisphere, in accordance with which the nations of North and South America should commit themselves, in effect, to combating, collectively, aggression initiated by any power or group of powers. As such, the proposal met with immediate objections from Argentina, and with acclaim in many liberal quarters elsewhere. Critics of the proposal, however, pointed out that methods of dealing with aggression in any part of the world were fully provided in the charter of the United Nations Organization, and they claimed that any such pact designed to replace or reduce the functions of the UNO was in reality an attack upon it, intended to usurp and weaken its authority and its powers.

USO. See UNITED SERVICE ORGANIZATIONS.

UTAH. Rocky Mountain state, United States; admitted to the Union Jan. 4, 1896. Population (1940): rural, 244,817; urban, 305,493; total, 550,310. Land area, 82,346 square miles, divided into 29 counties. Principal cities, with 1940 populations: Salt Lake City, the capital, 149,934; Ogden, 43,688; Provo, 18,071; Logan, 11,868.

Chief State Officers, 1945.—Governor, Herbert B. Maw; secretary of state, E. E. Monson; treasurer, Reese M. Reese; auditor, Ferrell H. Adams; attorney general, Grover A. Giles.

Judiciary.—Chief justice of the Utah Supreme Court, Martin M. Larson; associate justices, Roger I. McDonough, Lester A. Wade, James H. Wolfe, Abe W. Turner.

Legislature.—The state legislature (Senate, 23 members; House of Representatives, 60) convenes biennially in odd years on the second Monday in January.

Education.—Public elementary schools (1944–45), 370; teachers and principals, 2,356; average daily pupil enrolment, 77,241; average yearly salary of elementary school teachers and principals, $1,796. Public junior high schools, 82; teachers and principals, 682; average daily student enrolment, 24,567. Public senior high schools, 74; teachers and principals, 1,217; average daily student enrolment, 30,601; average yearly salary of junior and senior high school teachers and principals, $2,046. There are three teacher training schools in the state. Total state appropriation for education (1944–45), $8,759,818; appropriation by cities and counties, $7,706,891. Superintendent of public instruction, E. Allen Bateman. Education in Utah is compulsory for all children between the ages of 8 and 18, inclusive.

Finances.—The following statement of Utah's finances for the fiscal year 1944–45 was furnished by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$16,942,590.25
Receipts, 1944–45	50,264,622.76
Total	$67,207,213.01
Disbursements, 1944–45	46,163,034.49
Balance, beginning of fiscal year 1945–46	$21,044,178.52

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following tables:

Crop (and unit of production)	Production: Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	654	754	788
Oats (1,000 bu.)	1,462	2,107	2,132
Wheat (1,000 bu.)	5,377	7,361	7,186
Barley (1,000 bu.)	3,997	7,038	6,975
Sugar beets (1,000 short tons)	546	396	495
Hay:			
Alfalfa (1,000 tons)	927	1,040	1,007
Tame (1,000 tons)	1,000	1,140	1,115
Potatoes (1,000 bu.)	2,194	2,765	3,366
Apples (1,000 bu.)	412	629	420
Peaches (1,000 bu.)	551	850	870
Cherries (tons)	3,990	5,700	7,100
Grapes (tons)	840	800	800

UZBEK SOVIET SOCIALIST REPUBLIC. See UNION OF SOVIET SOCIALIST REPUBLICS.

V

VALERY, Paul Ambroise, French poet, philosopher, and critic: b. Sète (Cette), France, Oct. 30, 1871; d. Paris, July 20, 1945. A member of the French Academy since 1925, Paul Valéry is generally considered the foremost contemporary French poet.

Valéry's two important prose studies, *Introduction à la Méthode de Léonard de Vinci* (1895), and *La Soirée avec Monsieur Teste* (1895), and the poems collected in *Album de Vers Anciens* (1920) appeared in periodicals in 1892. During the winter of 1912–13 André Gide suggested that he prepare his early symbolist poems for publication in book form, and while working on this project he decided to try his hand at poetry again. What began as 25 lines of valedictory verse took more than four and a half years of work and emerged in 1917 as *La Jeune Parque*, a long poem of over 500 lines, which was universally acclaimed for its classic beauty. In 1920 Valéry published his best known poem, a philosophical meditation entitled *Le Cimitière Marin*. After the war he gained international fame and was appointed president of the Committee of Letters and Arts of the League of Nations, administrator of the Centre Méditerranéen at Nice, and professor of poetry at the Collège de France. Since the liberation of France, he had presided over the Comité National des Écrivains.

Valéry's work includes: poetry, *Charmes* (1922) and *Poésies* (1923); prose studies, *Eupalinos ou l'Architecte* (1924), *L'Âme et la Danse* (1924), *Regards sur le Monde Actuel* (1931), *Pièces sur l'Art* (1934), *Introducteur à la Poétique* (1938), *Variété* (parts 1-5, 1924–194?); and two melodramas, *Amphion* (1931) and *Semiramis* (1934).

VAN ANDA, Carr Vattel, American journalist: b. Georgetown, Ohio, Dec. 2, 1864; d. New York City, Jan. 28, 1945. Active as managing editor of the New York *Times* for 28 years, Mr. Van Anda stood in the front rank of the working newspaper men of his time. After two years at Ohio University, Van Anda obtained employment as foreman of the *Auglaize Republican*, a Wapakoneta (Ohio) weekly, where he acquired practical training in the mechanical side of newspaper work. Later, he worked as a typesetter and reporter in Cleveland and Baltimore. He went to New York City in 1888, and joined the staff of the *Sun*, then edited by Charles A. Dana, as reporter and copy editor. He became night editor in 1893, and occupied that post until he was offered the position of managing editor of the *Times* in 1904. Given a free hand in the exercise of his news judgment, Van Anda had ample opportunity to display his talents in the years that followed. He was especially gifted with the ability to grasp the full news value of many events that to other newspaper men had little or no interest. In 1925 he took a leave of absence because of ill health, and never actively returned to his post, although he retained the title of managing editor until his formal retirement in 1932.

VANDENBERG, Hoyt Sanford, United States Army Air Force officer: b. Milwaukee, Wis., Jan. 24, 1899. Lieutenant General Vandenberg commanded the United States Ninth Air Force for the Allied air war against Nazi Europe. He succeeded Gen. Lewis H. Brereton as the Ninth's commander on Aug. 10, 1944. On July 3, 1945, he was appointed assistant chief of the Air Staff, Army Air Forces. A nephew of Republican Senator Arthur H. Vandenberg and a descendant of the early Dutch settlers of New York, General Vandenberg was graduated from the United States Military Academy in 1923 and commissioned second lieutenant in the Army Air Corps. He participated in the invasion of North Africa and in the Tunisian and Sicilian campaigns. In March 1944, after a period of service at air force headquarters in Washington, he returned to the European theater, and in April 1944, was named deputy air commander in chief of the Allied Expeditionary Air Force. General Vandenberg holds the Distinguished Service Medal, the Legion of Merit, the Silver Star, the Distinguished Flying Cross, and the Air Medal. He was promoted lieutenant general March 17, 1945.

VARGAS, Getulio Dornelles, former president of Brazil: b. São Borja, Rio Grande do Sul, Brazil, April 19, 1882. For 15 years virtual dictator of Brazil, Dr. Getulio Vargas was forced by army ultimatum to resign the office of president on Oct. 30, 1945. Washington observers, speculating on the reasons behind the coup, thought it probable the army and the people of Brazil suspected Vargas of plotting to remain in power, despite his repeated assurance that he would not be a presidential candidate in the elections scheduled for December 1945. Dr. Vargas led a successful revolution against President Washington Luiz in 1930; served as provisional president from 1930 until 1934, and in the latter year, had himself elected president under a new constitution inaugurating a second republic. In 1935, a so-called Communist revolt gave him the opportunity of ridding himself of the remaining elements of opposition, and in 1937, he assumed dictatorial powers, "in the interests of national security." In 1938, he dealt summarily with the Nazi-promoted Integralista rebellion. In August 1942, after the sinking off the coast of Brazil of five Brazilian vessels, he declared war on Germany and Italy. Under his leadership, the government pursued a distinctly nationalistic policy. Dr. Vargas is the son of Gen. Manoel do Nascimento Vargas who took part in the overthrow of the monarchy and the establishment of the Brazilian Republic in 1889. Graduated from the Military School of Rio Pardo in 1900, young Vargas entered law school; received his degree in 1907; and returned to São Borja to practice. He was elected to the state legislature in 1909; became a member of the federal Congress in Rio de Janeiro in 1923; and in 1926, Brazil's minister of finance. He was named president of his native state of Rio Grande do Sul in 1928; and two years later, was Liberal candidate for the presidency of Brazil. Losing the election, he resorted to armed rebellion, and in October 1930, was named provisional president by a junta of army and navy officers.

VASILEVSKY, Alexander Mikhailovich, Soviet Army officer: b. 1897. One of the younger members of the Russian high command, and according to *Current Biography*, certainly among the most obscure, Marshal Vasilevsky began his career as a soldier in the Imperial Army in the First World War. His development into a skillful, often brilliant, military leader has followed a familiar pattern—active combat service with the

Bolsheviks in the Revolution; years of study at Russian general staff schools, including Frunze Military Academy; and phenomenal advancement to positions of great responsibility on the basis of sheer merit. He has been a member of the Russian Supreme Command since 1941 when he was drafted to help reorganize Russia's armies, after the war with Finland (1939–40). He was at that time a major general; in the space of 18 months he had risen to the rank of marshal of the Soviet Union, and had also become vice chairman of the Commissariat of Defense. In November 1942 he succeeded the ill and aging Marshal Boris M. Shaposhnikov as the Red Army's chief of staff, although his appointment was not revealed until April 1943. (He no longer holds this post.) With the completion of Soviet plans for the Stalingrad counteroffensive (Nov. 19, 1942), Vasilevsky was ordered to the front with Marshal Zhukov to supervise the operation, and from there was hurried to the Voronezh sector in a similar capacity. He was awarded the Order of Suvorov, First Degree, for these activities; he also holds the Order of Victory, highest Soviet decoration, given him in April 1944, and the Order of the Grand Cross of the British Empire. In May 1944, Marshal Vasilevsky directed the three-day drive on Sevastopol, Black Sea naval base in the Crimea. Eleven months later, he led troops of the Third White Russian Army in the final assault on Königsberg, long-besieged East Prussian capital, and took the city in little more than 36 hours. On Aug. 8, 1945, as supreme commander, Marshal Vasilevsky directed Soviet forces in their assault on Japanese-held western Manchuria.

VATICAN CITY. That part of the city of Rome which includes the Basilica of St. Peter, the Vatican Palace, the Vatican Gardens, and some detached palaces and churches, which by treaty with Italy, signed Feb. 11, 1929, was made an independent state with the pope at its head. The treaty recognizes the sovereignty of the Holy See over the new Vatican City (Città del Vaticano) wherein the Holy Father may exercise with full liberty and independence the mission of the Papacy. By this treaty the famous "Roman Question" of 60 years' standing was settled. The treaty also provides for territorial immunities outside the Vatican confines to churches and buildings used by the Holy See for its administration. Ratifications of the treaty were exchanged at the Vatican on June 7, 1929. The area of Vatican City is 108.7 acres; the population was estimated at 970 (1941). Vatican City has its own railway station, radio station, postal system, and currency. Executive powers are exercised by the governor, who is directly and exclusively responsible to the pope. The judicial power is vested in a tribunal of first instance, with the right of appeal to the Sacred Roman Rota and the Supreme Tribunal of the Segnatura. Diplomatic relations were maintained with 35 governments (1942), and in several other countries, including the United States, apostolic delegates conducted unofficial relations. Papal coinage was resumed in 1930. The total value of the bronze, nickel, and silver coins issued in any year is not to exceed 1,000,000 lire. The reigning pope is Pius XII (Eugenio Pacelli), born at Rome, March 2, 1876; elected supreme pontiff to succeed Pius XI, March 2, 1939. Secretary of state is Luigi Cardinal Maglione. Allied bombs fell four miles east of the sovereign state on July 19, 1943. Nazi troops on September 10 "assumed protection of Vatican City," and four days later German paratroops took over the policing of St. Peter's Square, making the pope a virtual prisoner until June 4, 1944, when Rome was retaken by the Allies. (For international events, during 1945, see ROMAN CATHOLIC CHURCH, THE.)

VENEREAL DISEASE CONTROL. See PUBLIC HEALTH SERVICE, UNITED STATES.

VENEZUELA. A republic of South America, situated on the north coast of the continent and bounded on the north by the Caribbean Sea, west by Colombia, east by British Guiana, and south by Brazil. Officially known as Los Estados Unidos de Venezuela (the United States of Venezuela), it has an area of 352,143 square miles and a population estimated in 1942 at 3,996,095 (including 100,670 Indians and 23,320 Venezuelans resident abroad). Visited by Columbus in 1498, it was named Little Venice a year later. In 1731 it was formed into the captaincy general of Caracas, remaining under Spanish rule until independence was established in 1821 through the efforts of Simón Bolívar, a native of Caracas. It was part of the Republic of Colombia from that time until an independent state was set up in 1830 after an amicable secession. According to the constitution adopted in 1936, the president is elected by a Congress of two houses, the Senate of 40 members and the Chamber of Deputies of 85 members, elected for four years. The country, however, can hardly be called a democracy. The 1936 Constitution gave the president almost unlimited powers, and left the Congress a one-party assembly subservient to him. The literacy test and the cost of registration, moreover, have thus far limited the number of ballots to about 250,000. Gen. Isaias Medina Angarita was elected president by Congress in April 1941, and his administration, which was supported by the Venezuelan Democratic Party and by the people generally, proved liberal and progressive on the whole. It inaugurated many democratic reforms, including the income tax law, social security, labor law reforms, reform of the civil code, proposed agricultural reforms, free, secret municipal elections, women's suffrage, and others of a progressive nature. General Medina's was the first Venezuelan administration to recognize the Soviet Union. The Medina regime was overthrown, however, on Oct. 19, 1945, by a military coup involving casualties estimated at 300 dead and over 1,000 wounded. The junta which organized the coup, led by intellectuals and young military officers, represented Acción Democrática, a political party of the middle class led by Rómulo Betancourt, who was named provisional president. The new regime was recognized almost immediately by Paraguay, Ecuador, and Cuba, and on October 30 by the United States. The country is divided into a federal district, 20 states, and two territories. Caracas, the capital, has a population of 203,342. Maracaibo has 110,010 inhabitants.

Religion and Education.—There is no state religion, but the majority of the inhabitants adhere to the Roman Catholic Faith. Freedom of worship is guaranteed. There are two Roman Catholic archbishops, at Caracas and Mérida, and six bishops.

Elementary instruction is free and compulsory from the age of seven to the completion of the primary grade. There were 274,645 elementary pupils and 11,645 in the secondary schools in 1943. For higher education there are the University of Los Andes at Mérida, the Cen-

tral University at Caracas, and a School of Geology at Maracaibo. The government also supports various institutes for special training.

Illiteracy has decreased from an estimated 87 per cent in 1935 to 62 per cent. Almost 10 per cent of the national budget is spent on education, but the educational system is still greatly handicapped by the lack of teachers.

Army and Navy.—All males 18 or over must serve from one to three years with the active forces of the army and remain in the reserve until 45. The peacetime active army consists of 10,000 all ranks. The naval force consists of several gunboats, coastal patrol vessels, and smaller boats. There are military and naval colleges, an air school, and a troop training school.

Communications.—There are 3,829 miles of roads in Venezuela fit for traffic the year round, and because of the absence of adequate water, rail, or air transportation, distribution within the country depends largely on road transport. Registrations of automotive vehicles at the end of 1944 totaled 29,724, including 15,095 passenger cars, 1,288 motorbusses, 8,334 trucks, and 4,239 small trucks. The proposed budget for 1945–46 included an appropriation of 13,962,000 bolivares ($4,190,000) for road construction, maintenance projects, several bridges, and a pack trail.

Railways in 1944 totaled 684 miles, not including about 62 miles of railroad owned by the oil companies. Ten of the twelve main railway lines are national, and two are owned by the British, who also own and operate the electric tramways and the telephone system of Caracas. During the first seven months of 1945, ten airdromes were opened for domestic service.

Agriculture and Industry.—The country is divided into three zones—the agricultural, the pastoral, and the forest. In the agricultural zone are grown coffee, cacao, sugar cane, wheat, rice, tobacco, maize, cotton, and beans. About one fifth of the population is engaged in agricultural pursuits. In the agricultural stations established in each of the 20 state capitals, scientific methods of cultivation are now being taught. The pastoral zone affords grazing for more than 3,000,000 cattle and numerous horses, sheep, and other stock. The forest zone, occupying a large portion of the country, furnishes caoutchouc, balata, tonka beans, divi-divi, copaiba, and more than 600 species of wood. Gathering of wild rubber was resumed in 1942. Coffee is the second most important export item, petroleum being the first. Estimates made in May 1945 of the 1944–45 coffee crop ranged from 950,000 bags (of 60 kilograms each—1 kilogram = 2.2046 pounds) to 1,000,000 bags. The output of oil reached a new high peak by the midyear of 965,329 barrels a daily, an increase of 30 per cent since the beginning of the year, and 138 per cent above that achieved in 1942. Venezuela is already the third largest oil producing country in the world. Venezuela imported, until some years ago, nearly all rice consumed. The 1944–45 crop totaled about 25,000,000 kilograms of rice paddy, amounting to 18,000,000 grams of rice when hulled. Only about 3,000 tons had to be imported to meet the current demand. Until a few years ago, nearly all cotton also had to be imported. The current output exceeds 5,000 tons annually, or 61 per cent of the native raw material used. There are 18,000 sugar plantations and 13,000 cocoa plantations. Exploitation of the extensive forests has barely begun; lack of transportation has handicapped development of the industry, and much lumber is accordingly imported from the United States. Livestock in Venezuela is estimated to include 4,264,556 oxen, 1,364,678 goats, 194,033 horses, 107,893 sheep, 355,551 pigs, 191,134 asses, and 43,042 mules. Mineral resources include gold, asphalt, coal, copper, and magnesite. The output of gold in 1943 amounted to 82,643 fine ounces. Off the north coast, pearl fishing is carried on by the government. Iron, tin, asbestos, and mica are now being mined, and the government-operated salt mines have an annual production of about 25,000 tons. Venezuela produced 16,623.10 carats of industrial diamonds in the first three quarters of 1943, and developments of iron ore and mercury deposits were under way.

Finances.—Total budgetary receipts during nine months of the fiscal year July 1, 1944, to June 30, 1945, reached 440,386,201 bolivares, more than the previous record receipts of 420,900,000 bolivares during the entire fiscal year of 1943–44. Expenditures totaled 345,451,312 bolivares for the first nine months of the fiscal year, compared with expenditures during the entire previous fiscal year of 362,600,000 bolivares.

It was announced on April 28 that Venezuela's income from oil during the calendar year 1944 totaled 242,000,000 bolivares ($74,000,000), and that receipts from income taxes amounted to 41,286,785 bolivares ($12,500,000). The rest of the total revenue of 541,000,000 bolivares ($162,500,000) was derived from customs duties on tobacco and other taxes.

On April 15, according to a report made to the Congress by President Medina on April 21, there was a treasury surplus of 238,499,000 bolivares ($71,549,000) as compared with a public debt of only 24,952,000 ($7,485,600).

In June the Congress approved a budget providing for an expenditure in 1945–46 of approximately 500,000,000 bolivares ($149,253,731), the largest in Venezuela's history.

Foreign Trade.—According to *Foreign Commerce Weekly* for August 18, 1945, the export of petroleum, the most important export commodity and principal source of foreign exchange, during the first quarter of 1945 were as follows:

	Cubic meters	Barrels
Crude	9,944,663	62,551,030
Refined	757,562	4,765,065

The value of other exports from Venezuela to the United States amounted to $5,365,628, as compared with $3,565,903 in the corresponding period of 1944. Exports to the United States constitute virtually all of Venezuela's export trade. Coffee exports in the first eight months of the 1944–45 crop year (Oct. 1, 1944, to May 31, 1945) totaled 347,681 sacks of 60 kilograms each. An export figure of 600,000 sacks for the quota year was estimated.

During the first three months of 1945, 106,016 metric tons of cargo were delivered to Venezuelan ports from the United States, compared with 106,955 metric tons during the first quarter of 1944. As in the case of exports, import trade with the United States provides virtually all supplies from overseas.

Principal Events.—On Feb. 14, 1945, Venezuela declared war on the Axis nations. Uruguay took similar action at the same time, leaving Argentina the only remaining Latin American nation at peace with the Axis. Venezuela formally adhered to the declaration of the United Nations in Washington on February 20; resumed diplomatic relations with the Soviet Union on March 13; was

represented among the 46 nations who gathered at San Francisco on April 25 to draft the charter of the world security organization; and was given presidency of the judicial agency set up on May 1 as one of the working committees to draft the United Nations Charter. On April 11, Venezuela protested the killing of the Venezuelan consul, Alberto Delfino, and his family in Manila by the Japanese on February 10. The existence of a widespread plot was revealed on May 25, when the authorities announced the arrest of 10 Germans charged with planning to sabotage the oilfields and blow up Allied tankers carrying fuel to Europe. The Venezuelan Cabinet resigned on July 13, and on the following day President Medinas reorganized the body, making five changes. In Caracas, on July 22, began the Third Inter-American Conference on Agriculture, which conferred on urgent postwar problems and the reconversion of hemispheric agriculture from a war basis to peacetime conditions.

Expanding petroleum production stimulated economic activity, especially during the first quarter of the year. President Medina in his annual message to the Congress on April 21 pointed to the large surplus in the treasury and pressed for enactment of a far-reaching program of agrarian reform, upon which public attention had been focused since March 13, when the press had first published a projected "law of agrarian reform," representing the recommendations of a commission appointed by the president in January 1944. The proposed program provided a legislative basis for raising the economic status and improving the health, education, and welfare of the farming population by stimulating agriculture, conserving and improving soil, and acquiring and controlling the use of lands.

Work continued on the government's ambitious five-year program of public works, initiated in 1941, which provided for work on schools, hospitals, sewers, aqueducts, roads, bridges, airports, port installations, and irrigation products. Other projects were added to this large program during 1945, including housing for the faculty of medicine of the Central University of Venezuela, for which a supplementary appropriation of 10,000,000 bolivares ($2,985,000) was made in January.

The rising cost of living, particularly in rents and food, was combated in Caracas through government-sponsored building projects and a large, popular-priced restaurant operated for the public. Seven modern and completely equipped apartment buildings were in process of erection, with 1,000 apartments having a capacity of 5,000 persons. Rents were scheduled at half the current figure prevailing elsewhere for similar accommodations.

Other evidences of the Medina administration's increasing liberality of outlook was the legalization of labor unions, which had been outlawed in 1944 but had nevertheless continued to function. The Communist Party was also legalized. In a strike called by 780 workers engaged in building a pier at La Guaira, regarded as a test case, the government, contrary to previous practice, failed to interfere. The new Compulsory Social System, from Oct. 9, 1944, when it was inaugurated, to Jan. 30, 1945, paid out benefits amounting to 290,598 bolivares ($87,180), chiefly for sickness and unemployment.

The administration of Rómulo Betancourt, which succeeded that of General Medina on October 19, pledged the appointment of a National Assembly to rewrite the constitution; election of a president by free balloting within six months; complete freedom of press and speech, and restoration of other suspended constitutional guarantees.

VERMONT. New England state, United States; admitted to the Union March 4, 1791. Population (1940): rural, 235,992; urban, 123,239; total, 359,231. Land area, 9,278 square miles, divided into 14 counties. Chief cities, with 1940 populations: Burlington, 27,686; Rutland, 17,082; Barre, 10,909; Brattleboro, 9,622; St. Albans, 8,037; Montpelier, the capital, 8,006.

Chief State Officers, 1945.—Governor, Mortimer R. Proctor; lieutenant governor, Lee E. Emerson; secretary of state, Rawson C. Myrick; treasurer, Levi Kelly; auditor, David Anderson; attorney general, Alban Parker.

Judiciary.—Chief justice of the Vermont Supreme Court, Sherman R. Moulton; associate justices, John C. Sherburne, John S. Buttles, Allen R. Sturtevant, Olin M. Jeffords.

Legislature. — Vermont's General Assembly (Senate, 30 members; House of Representatives, 246) convenes biennially in odd years on the first Wednesday after the first Monday in January.

Education.—Public elementary schools (1944–45), 951; teachers, 1,758; pupils, 40,455; average yearly salary of elementary school teachers, $1,102. Public 4- and 6-year high schools (1944–45), 83; teachers, 672; students, 14,644; average yearly salary of high school teachers, $1,686. Education in Vermont is compulsory for all children between the ages of 7 and 16, inclusive, or until completion of the 8th grade. There are three teacher training schools. The University of Vermont at Burlington receives financial aid from the state. Total state appropriation for education (1944–45), $1,262,950; appropriation by cities and counties (1943–44), $5,833,911. Commissioner of education, Dr. Ralph E. Noble.

Finances.—Following is a statement of Vermont's finances for the fiscal year 1944–45, furnished by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$ 7,595,624.61
Receipts, 1944–45	19,259,525.15
Total	$26,855,149.76
Disbursements, 1944–45	18,116,476.90
Balance, beginning of fiscal year 1945–46	$ 8,738,672.86

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Production Preliminary 1945
Corn (1,000 bu.)	2,722	2,553	2,553
Oats (1,000 bu.)	1,662	1,395	1,280
Hay:			
Clover and timothy (1,000 tons)	745	646	807
Tame (1,000 tons)	1,075	985	1,255
Potatoes (1,000 bu.)	1,942	1,656	1,488
Apples (1,000 bu.)	561	513	123

VETERANS, Educational Plans of. See EDUCATION, REVIEW OF; GI BILL OF RIGHTS.

VETERANS' ADMINISTRATION. As of June 30, 1945, the organization of the Veterans' Administration consisted of the following officers: Frank T. Hines, administrator of veterans' affairs (General Omar N. Bradley succeeded General Hines, Aug. 15, 1945); Adelbert D. Hiller, exec-

utive assistant to the administrator; Harold W. Breining, assistant administrator in charge of finance and insurance; Omer W. Clark, assistant administrator in charge of compensation, pension, vocational rehabilitation and education; George E. Ijams, assistant administrator in charge of medical and domiciliary care, construction and supplies; Edward E. Odom, solicitor in charge of legal activities; and Robert L. Jarnigan, chairman of the Board of Veterans' Appeals.

Insurance

The United States government life insurance fund is a trust fund administered by the government as trustee for the sole benefit of the policyholders. The government derives no profit whatever from the administration of this fund as it may be used only for the payment of claims under United States government life insurance contracts and as dividends to the policyholders themselves. All premiums paid by the policyholders, all interest received from policy loans, investments, et cetera, are covered into this fund in the United States Treasury.

At the close of the 1944–45 fiscal year there were in force 567,934 United States government life (converted) insurance policies amounting to $2,454,855,781 insurance. During this fiscal year 439 policies amounting to $1,600,792 insurance were reinstated. Monthly payments averaging $35.10 were being paid to 10,841 permanently and totally disabled veterans. During the fiscal year ended June 30, 1945, there were approved 2,743 applications aggregating $16,857,362. The actual disbursements made from this fund during the fiscal year totaled $32,273,258.28.

Yearly renewable term insurance was granted to all veterans of the First World War who made application for this form of benefit within 120 days after induction into service. The amount of term insurance was limited to $10,000 for each veteran. Monthly payments on term insurance policies are based on $5.75 per $1,000 of insurance in force at such time as award for disability or death is made. As of June 30, 1945, monthly payments were being made to 9,301 permanently and totally disabled veterans and to the beneficiaries of 2,042 deceased veterans.

Automatic insurance was granted to those veterans of the First World War who were disabled or who died within 120 days after being inducted into service and before application for term insurance was made. The amount of automatic insurance was limited to $5,000. As of June 30, 1945, monthly payments were being made to 215 permanently and totally disabled veterans and to the beneficiaries of 11 deceased veterans. These payments are fixed by law at $25 per month.

The disbursements for term and automatic insurance during the fiscal year 1945 totaled $19,756,071.97, including $12,941,477.28 transferred to the United States government life insurance trust fund for cases traceable to extra hazards of military or naval service, making a net disbursement of $6,814,594.69.

The National Service Life Insurance Act, approved Oct. 8, 1940, authorized the issue of a new type of insurance to certain persons then in the active service of land and naval forces (including Coast Guard) and those thereafter entering on active duty, including persons inducted under the Selective Training and Service Act of 1940. The insurance was available to those persons then on active duty, and if in good health, upon application made within 120 days from the date of the approval of the act. As to those who entered service after that date, application must be made within 120 days from date of entry into service. This insurance is limited to $10,000 for each veteran and is payable only in the event of death of the insured while the policy is in force. During the fiscal year 1945 there were approved 2,206,813 applications aggregating $20,398,204,000 of insurance. The total number of applications approved to June 30, 1945, was 17,492,388 amounting to $135,021,405,000 of insurance. Benefits had been awarded on June 30, 1945, in 223,626 cases on insurance valued at $2,039,255,100. The average contract insurance in force at the time of the veteran's death was $9,191.42. Widows were the sole beneficiary in 22 per cent and parents in 68 per cent of the awarded cases.

An act to promote and strengthen the national defense by suspending enforcement of certain civil liabilities of certain persons serving in the military and naval establishments, including the Coast Guard, was approved Oct. 17, 1940. Article V of the act provides that the government will, on application of the insured, guarantee to commercial insurance companies premiums on insurance carried with such companies by persons in active service. Through June 30, 1945, 103,227 applications for insurance benefits under this act had been received, of which 87,037 representing $216,993,141.30 insurance had been approved and 14,793 representing $34,090,135.15 had been disapproved.

Guardianship.—The Veterans' Administration maintains supervision of all guardianship activities for incompetent veterans and minor beneficiaries. An effort has been made to utilize so far as possible the services of relatives as guardians of the person and the services of banks and trust companies as guardians of the estate of wards. As of June 30, 1945, the total guardianship load was 87,346 wards of whom 45,097 were incompetents and 42,249 minors. The value of estates of all wards approximated $163,158,552.78 on June 30, 1945.

Pensions and Compensation

Yellow Fever Experiments.—An act approved Feb. 28, 1929, recognized the high public service rendered by Maj. Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever. This act, in addition to establishing a roll of honor, granting medals, etc., authorized a monthly payment of $125 to each of 17 designated persons during the remainder of their lives. As of June 30, 1945, six persons were receiving this benefit. The disbursement for this type of benefit during the fiscal year totaled $9,375.

Revolutionary War.—The last pensioner was Daniel F. Bakeman who died at Freedom, N. Y., April 5, 1869, at the age of 109 years. The last widow of a veteran to receive pension was Esther S. Damon of Plymouth County, Vermont, who died Nov. 11, 1906, at the age of 92 years.

War of 1812.—Hiram Cronk, the last veteran pensioner died May 13, 1905, at Ava, N. Y., aged 105 years. The last widow of a veteran to receive pension was Caroline King of Cheektowaga, N.Y., who died June 28, 1938, at the age of 89 years. As of June 30, 1945, the sole remaining pensioner was Esther Ann Hill Morgan, of Independence, Oreg., a dependent daughter of John Hill, deceased, private, Clark's and McCumber's Companies, New York Militia. Mrs.

Morgan was born March 9, 1857, and receives $20 a month by special act of Congress.

Mexican War.—The last veteran pensioner was Owen Thomas Edgar, who died Sept. 3, 1929, age 98 years. On June 30, 1945, pensions were being paid to 54 widows and 1 child of veterans of this war. Disbursements made during the fiscal year 1945 totaled $31,129.24.

Indian Wars.—On June 30, 1945, pensions were being paid to 1,115 veterans, the average age of whom was 82 years. Dependents totaled 2,709, classified as follows: widows, 2,647; children, 52; and others, 10. Disbursements during the fiscal year 1945 totaled $955,573.20 to veterans and $1,305,867.10 to dependents of veterans.

Civil War.—Out of a total of 2,213,365 who served in the Union forces in the Civil War, pensions were being paid to 229 veterans on June 30, 1945. The average age for this group was 98 years. Disbursements during this fiscal year totaled $328,846.77. On June 30, 1945, pensions were being paid to dependents of 24,521 deceased veterans. The dependents totaled 24,681 and were classified as follows: 22,900 widows and remarried widows, and 1,781 children. Of the 24,521 cases there were 3,236 cases in which the monthly payment was $30; 18,184 cases in which the beneficiary received $40 per month as provided by law for widows of the attained age of 70 years, and 217 in which $50 per month was being paid to widows who were the wives of veterans during their service in this war. There were 2,151 cases in which dependents were in receipt of pensions under special acts of Congress, and 733 in which the dependents were being paid pensions under general laws because of the death of the veteran from causes due to military service. Disbursements during the fiscal year 1945 totaled $11,544,251.06.

Spanish American War.—On June 30, 1945, pensions were being paid to 128,104 veterans. Of this number 127,203 were receiving pensions for disabilities of nonservice origin or for age, 840 for service-connected disabilities and 61 were special act cases. A study of the age of these pensioners shows that 89 per cent are between the ages of 60 and 75 years as of the above date. Disbursements during the fiscal period amounted to $111,313,837.15. As of June 30, 1945, pensions were being paid to the dependents of 71,955 deceased veterans. The number of dependents totaled 76,213 and were classified as follows: 70,526 widows, 5,520 children, 162 parents, and 5 others. During the fiscal year 1945 the amount paid to these dependents totaled $31,483,634.89.

Regular Establishment.—As of June 30, 1945, the number of veterans receiving pensions as a result of disabilities incurred in service in time of peace totaled 42,925. Disbursements to this group during the year totaled $18,737,740.79. On June 30, 1945, pensions were being paid to the dependents of 13,666 deceased veterans whose death was determined to be the result of disease or injury originating in line of duty in the military or naval service in time of peace. The number of dependents receiving pensions as of June 30, 1945, totaled 20,046 consisting of 6,479 widows, 5,470 children, 8,087 parents, and 10 others. Disbursements during the fiscal year 1945 totaled $6,162,021.55.

First World War.—*Veterans, Service-connected.*—During the fiscal year 1945, the number of veterans receiving compensation for disabilities directly or presumptively connected with service totaled 332,628. An analysis of the major disabilities for which this compensation is being paid discloses that neuropsychiatric diseases are the disabling cause in 19.6 per cent of the awards, tuberculosis in 15.3 per cent, and general medical and surgical conditions in 65.1 per cent. During the fiscal year 1945, $180,349,901.86 was paid to veterans with service-connected disabilities.

Veterans, Nonservice-connected.—As of June 30, 1945, pensions were being paid to 90,477 totally disabled veterans whose disabilities were not of service origin. Of the veterans on the roll 37 per cent were over 55 years of age. Disbursements during the fiscal year 1945 totaled $53,061,553.55.

Emergency, Provisional, Probationary, or Temporary Officers of First World War.—As of June 30, 1945, there were 2,550 officers entitled to retirement pay, of whom 2,453 were receiving full pay and 31 partial pay. In the remaining 66 cases, there was a complete forfeiture of retirement pay due largely to the fact that the officer was employed by the government at a salary in excess of $3,000 per annum. Disbursements during the fiscal year 1945 totaled $4,084,049.12. Of the 2,550 officers entitled to retirement pay 2,466 served in the army, 68 in the navy, and 16 in the marine corps.

Deceased Veterans, Service-connected.—On June 30, 1945, compensation was being paid to the dependents of 84,416 veterans who died in service or as a result of diseases or injuries incurred in service. These dependents totaled 108,184 and were classified as follows: 30,560 widows, 16,012 children, and 61,612 parents. Disbursements during the fiscal year 1945 totaled $50,019,402.78.

Deceased Veterans, Nonservice-connected.—An act approved June 28, 1934, as amended July 19, 1939, authorized the payment of compensation to the widows and children of deceased veterans who at the time of death were suffering from a disability of service origin but who died as a result of a disability not incurred in service. On Dec. 14, 1944, this act was further amended to authorize the payment of pension if the veteran was discharged or released from service under conditions other than dishonorable after having served 90 days or more or for disability incurred in line of duty, or if the veteran was at the time of death, receiving or entitled to receive compensation, pension, or retirement pay for a service-connected disability. On June 30, 1945, payments were being made on 77,584 deceased veterans' cases, involving 73,263 widows and 75,094 children. Disbursements during the fiscal year 1945 totaled $24,729,415.

Second World War.—*Living Veterans, Service-connected.*—On June 30, 1945, compensation was being paid to 536,541 veterans for disabilities incurred in line of duty. The average age of these veterans was 29 with the greatest incidence of disability at age 24. Disbursements to this group during the fiscal year totaled $167,975,339.72. In addition, $7,046,348.66 was received by this group during this year for increased pension payments because of vocational training.

Living Veterans, Nonservice-connected.—On June 30, 1945, pensions were being paid to 543 totally disabled veterans, whose disabilities have been determined to be not due to their military service. The average age of these veterans was 34 with the greatest incidence of disability at age 24. Disbursements to this group during the fiscal year totaled $152,846.87.

Deceased Veterans, Service-connected.—On June 30, 1945, pensions were being paid to the dependents of 94,463 veterans who died as the result of disease or injury originating in line of duty. These dependents received a total of $60,058,586.30 during the fiscal year 1945.

Deceased Veterans, Nonservice-connected.—The acts of May 27, 1944, and Dec. 14, 1944, extended to widows and children of deceased Second World War veterans the benefits provided by the act of June 28, 1934, as amended, based on First World War service, except that in Second World War cases, pension is payable only if the veteran had a service-connected disability at the time of his death for which pension would be payable if 10 per centum or more in degree. On June 30, 1945, payments were being made on 164 cases involving 153 widows and 166 children. Disbursements to these dependents during this fiscal year amounted to $66,418.66.

Retired Officers of the Army of the United States (Except Regulars).—On June 30, 1945, there were 9,097 Reserve officers entitled to retirement pay for service-connected disabilities as provided under Public 18, 76th Congress, approved April 3, 1939, and Public 262, 77th Congress, approved Sept. 26, 1941. In 55 cases retirement pay had been forfeited. Disbursements during the fiscal period totaled $10,174,646.32. The average age of the 9,097 officers was 36 years and 9,061 of the total had service in the Second World War.

Grand Total—Pensions and Compensation.—The following table shows the number on the rolls as of June 30, 1945, and the net disbursements during the fiscal year 1945 from the appropriation "Army and Navy Pensions."

War	On Roll June 30, 1945	Disbursements Fiscal Year 1945
Yellow fever experiments		
Participants	6	$ 9,375.00
War of 1812		
Deceased veterans	1	240.00
Mexican War		
Deceased veterans	55	31,129.24
Indian Wars—total	3,788	2,261,440.30
Living veterans	1,115	955,573.20
Deceased veterans	2,673	1,305,867.10
Civil War—total	24,750	11,873,097.83
Living veterans	229	328,846.77
Deceased veterans	24,521	11,544,251.06
Spanish American War—total	200,059	142,797,472.04
Living veterans	128,104	111,313,837.15
Deceased veterans	71,955	31,483,634.89
Regular Establishment—total	56,591	24,899,762.34
Living veterans	42,925	18,737,740.79
Deceased veterans	13,666	6,162,021.55
First World War—total	587,655	312,244,322.31
Living veterans	425,655	237,495,504.53
Service connected	332,628	180,349,901.86
Nonservice connected	90,477	53,061,553.55
Emergency officers, etc.	2,550	4,084,049.12
Deceased veterans	162,000	74,748,817.78
Service connected	84,416	50,019,402.78
Nonservice connected	77,584	24,729,415.00
Second World War—total	631,711	235,299,540.21
Living veterans	537,084	175,174,535.25
Service connected	536,541	175,021,688.38
Nonservice connected	543	152,846.87
Deceased veterans	94,627	60,125,004.96
Service connected	94,463	60,058,586.30
Nonservice connected	164	66,418.66
Retired officers, Army of the United States (except regulars) Living veterans	9,042	10,174,646.32
Grand total — pensions and compensation	1,513,658	739,591,025.59
Living veterans	1,144,154	554,180,684.01
Deceased veterans	369,498	185,400,966.58
Yellow fever participants	6	9,375.00

Vocational Rehabilitation and Education

During the year ended June 30, 1945, an expanding program was carried on under the provisions of Public Law 16, 78th Congress, approved March 24, 1943, for eligible disabled veterans with handicaps removable by training; also the first year of a program of education and training under the provisions of part 2, Public Law 346, 78th Congress, approved June 22, 1944, for eligible nondisabled veterans in need of educational or occupational readjustment. As of June 30, 1945, 22,232 veterans had entered into training under Public 16. Of these, 14,986 were still in training, 5,013 had interrupted training, 1,469 had discontinued training, and 764 had been rehabilitated. Under title 2, Public Law 346, 22,335 veterans were in training on June 30, 1945, and 990 veterans had completed courses of education or training.

Medical

On June 30, 1945, the Veterans' Administration was operating hospital facilities at 97 locations in 45 states and the District of Columbia. The total number of beds in these facilities was 95,211, of which 81,133 were for hospital treatment and 14,078 for domiciliary care. In addition, 5,438 hospital beds in other government hospitals were being utilized.

Hospitalization.—On June 30, 1945, the hospital load was 71,439 patients. Of this number 71,229 were United States veterans, classified by service as follows: First World War, 44,788; Second World War, 20,774; Spanish American War, 2,793; Civil War, 8; all other wars, expeditions, and occupations, 41; Regular Establishment, 2,825. Other hospital patients included 47 allied veterans of the First World War and 163 miscellaneous beneficiaries. Of the 71,229 United States veterans, 47,892 or 67.24 per cent were receiving treatment for disabilities not of service origin. There were 66,818 United States veterans in facilities controlled by the Veterans' Administration, 2,958 in other government hospitals, and 1,453 in state or civil institutions. Of the patients in hospitals June 30, 1945, 62.54 per cent were receiving treatment for neuropsychiatric diseases, 27.95 per cent for general medical and surgical conditions and 9.51 per cent for tuberculosis. Admissions during the fiscal year 1945 included 241,013 United States veterans, 2,981 admissions of other patients, 130 allied veterans, 1,939 persons in active military or naval service, and 912 miscellaneous beneficiaries. Of the 241,013 United States veterans, admissions were authorized for 13,979 for observation and treatment of pulmonary tuberculosis, 25,492 for psychotic or mental diseases; 19,973 for other neurological disorders, and 181,569 for general medical and surgical conditions.

During the fiscal year 1945, there were 306,251 United States veterans under hospitalization. Of this number, 235,022 were discharged after an average of 73 in-patient days. Patients who remained until the completion of treatment numbered 190,217 or 80.94 per cent of the total discharges.

Deaths in hospitals during the fiscal year totaled 15,488 of which number 71.99 per cent occurred among patients under treatment for general conditions; 14.98 per cent for tuberculosis; and 13.03 per cent for neuropsychiatric diseases.

Domiciliary Care.—At the close of the fiscal year 1945 the veteran population present in domiciliary status in facilities under the control of the Veterans' Administration totaled 8,779. The percentage distribution of the above veteran patients by wars was: First World War, 86.43; Spanish American War, 6.71; Second World War, 4.10; peacetime service in the Regular Establishment,

2.56; other wars, expeditions, and occupations, 0.20. An analysis of the causes of disability of these veterans shows 5,520 to be general medical and surgical conditions, 3,133 neuropsychiatric diseases; and 126 tubercular ailments.

During the fiscal year 1945, there were 10,719 veterans admitted for domiciliary care. Of this number 8,240 or approximately 77 per cent had served in the First World War, 1,473 or 14 per cent in the Second World War; and 739, or approximately 7 per cent in the Spanish American War. Approximately 90 per cent of the admissions were for nonservice-connected disabilities. Of the veterans admitted to domiciliary care during this period 68 per cent were disabled by general medical and surgical conditions, 31 per cent by neuropsychiatric diseases, and 1 per cent by tuberculosis.

During the fiscal year 1945, 15,586 veterans were discharged after an average of 6½ months' domiciliary care. Deaths among domiciled veterans during this period totaled 83, the principal causes of which were diseases of coronary arteries and angina pectoris, diseases of the myocardium and syphilis, which collectively were responsible for 63 per cent of the deaths.

The federal government is required to reimburse state or territorial homes for disabled soldiers in an amount not to exceed $300 per year for each person domiciled therein who is eligible for similar care in facilities controlled by the Veterans' Administration. During the fiscal year 1945 an average of 4,159 such persons were cared for in these homes, thereby creating an obligation of over $1,194,353 on the part of the federal government.

Dental Care.—During the fiscal year 1945 dental care was provided 35,111 hospital patients, 4,725 domiciliary members and 6,371 out-patients in clinics maintained by the Veterans' Administration, at an actual cost of $1,323,796. During this fiscal period, 30,402 new dentures were made and 5,429 repaired in dental clinics of the Veterans' Administration. Dental treatment was authorized to private practitioners for 2,354 veterans, at a cost of $112,245 during the same period.

Out-patient Examinations and Treatments.—During the fiscal year 1945, there were 1,771,760 physical examinations for out-patient purposes made in field facilities. Of these examinations 98.5 per cent were medical and 1.5 per cent were dental. Treatments furnished during the year for out-patient purposes totaled 828,620, of which 91 per cent were medical and 9 per cent dental.

Finance

The actual net disbursements from appropriations and trust funds of the Veterans' Administration (including adjustments on lapsed appropriations) during the fiscal year 1945 were as follows:

Appropriation	Disbursements
Salaries and expenses	$ 158,824,748.47
Printing and binding	553,756.46
Hospital and domiciliary facilities and services, Veterans' Administration	15,800,635.66
Army and navy pensions and military and naval compensation	771,796,516.61
Military and naval insurance	19,756,071.97
National service life insurance appropriated fund	1,117,548,383.54(1)
Adjusted service and dependent pay	63,909.11
Vocational rehabilitation (First World War)	363.94(2)
Military and naval family allowance	2,346.96(2)
Vocational rehabilitation revolving fund (Second World War)	99,978.51
Soldiers' and sailors' civil relief, Veterans' Administration (Second World War)	27,877.90
Penalty mail costs, Veterans' Administration	180,516.30
Miscellaneous	18,066.40
Trust funds:	
U. S. government life insurance	32,273,258.28
National service life insurance	136,846,767.35
Adjusted service certificate fund	11,223,396.84
General post fund	96,462.50
General post fund auxiliary account, Veterans' Administration	270,931.49
Funds due incompetent beneficiaries	185,223.06
Personal funds of patients, Veterans' Administration	5,754,543.87
Total	$2,271,318,333.42

(1) Represents net amount transferred by voucher to National Service life insurance for payment of claims traceable to the extra hazards of military or naval service.

(2) Credit—the amount shown for the appropriation "Salaries and Expenses" includes net disbursements of $27,036.39 from allotments made to other government agencies.

Loan Guarantee Activities

Title 3 of the Servicemen's Readjustment Act provided for the guarantee of loans for the purchase or construction of homes, farms, business property for any person who shall have served in the active military or naval service of the United States at any time on or after Sept. 16, 1940, and prior to the termination of the Second World War and who shall have been discharged or released therefrom under conditions other than dishonorable after active service of 90 days or more, or by reason of an injury of disability incurred in service in line of duty. As of June 30, 1945, the total applications received for guarantee of loans was 15,455. Of this number, 12,228 were guaranteed for a total of $19,644,824.90, distributed by types as follows: home loans, 11,220; farm loans, 270; and business loans, 738.

Readjustment Allowances

Operations under title 5 of the Servicemen's Readjustment Act, providing assistance to both unemployed veterans and those in self-employment, were begun on a nationwide basis Sept. 4, 1944. As authorized by the act, the Veterans' Administration entered into agreements with the various state unemployment compensation agencies to assume the functions of taking, processing, adjustment and determination of readjustment allowances, and payment of allowances relating to unemployment. An unemployed veteran who has met the basic entitlement requirements is eligible for allowances providing he files a claim, registers for work and is able to work and available for suitable work. A veteran in self-employment for profit in an independent establishment, business, trade, profession or other vocation who has met the basic entitlement requirement is eligible for allowance providing he has been fully engaged in such employment and his net earnings have been less than $100 in the previous calendar month. A total of 180,798 veterans filed applications for determination of entitlement for allowances; 159,886 veterans submitted claims for unemployment allowances; and 15,221 filed claims for self-employment allowances. Disbursements for the fiscal year 1945 totaled $23,512,150, of which $20,123,525 represented payments to unemployed veterans and $3,388,625, payments to self-employed veterans.

VETERANS' EMPLOYMENT SERVICE. See WAR MANPOWER COMMISSION.

VETERANS OF FOREIGN WARS OF THE UNITED STATES. In 1945, the membership strength of the Veterans of Foreign Wars, founded in 1899, passed the one million mark. According to the annual reports of officers, made public at the 46th national encampment, October 2–3–4, Chicago, more than 900 new local units were organized in 1945 to create a total of 4,500 posts of the Veterans of Foreign Wars located in the 48 states, Alaska, the Canal Zone and the Territory of Hawaii.

The first postwar "United Nations Veterans Victory Conference," planned and sponsored by the Veterans of Foreign Wars, was held in Chicago, October 1–2, in conjunction with the 1945 national convention. Combat veterans representing 22 members of the United Nations participated in this conference as guests of the Veterans of Foreign Wars.

The following officers were elected for the ensuing year: Joseph M. Stack, Pittsburgh, Pa., commander in chief; Louis E. Starr, Portland, Oreg., senior vice commander in chief; Ray H. Brannaman, Denver, Colo., junior vice commander in chief; Robert B. Handy, Jr., Kansas City, Mo., adjutant general-quartermaster general; Lyall T. Beggs, Madison, Wis., judge advocate general; Dr. Clarence R. Rungee, New Haven, Conn., surgeon general; Rev. Clarence G. Hall, Catlin, Illinois, national chaplain.

BARNEY YANOFSKY,
Director, Public Relations Dept., Veterans of Foreign Wars.

VICTORIA. See AUSTRALIA.

VINSON, Frederick Moore, United States Cabinet officer: b. Louisa, Ky., Jan. 22, 1890. On July 23, 1945, Mr. Vinson was sworn in as the 53d secretary of the treasury of the United States, succeeding Henry Morgenthau, Jr. He had previously been director of war mobilization and reconversion. One of the "strong men" of the Roosevelt and Truman administrations, the 56-year-old Kentuckian has a background of governmental experience few men have ever achieved—he has held key positions in the legislative, judicial, and executive branches of the United States government. He was for 14 years a member of the House of Representatives, and during that period, became an authority on taxation in his capacity of chairman of the tax subcommittee of the House Ways and Means Committee. In May 1938, he was appointed an associate justice of the United States Court of Appeals of the District of Columbia. In 1942, in addition to his regular appellate court work, he was named chief judge of the United States Emergency Court of Appeals, a court created by Congress providing for judicial review of decisions of the price administrator, which assignments he held until May 1943. In that year, when rising prices threatened the nation's economic structure, he was named director of economic stabilization, and given the task of holding the line against inflation. He served as vice chairman of the delegation of the United States to the United Nations Monetary and Financial Conference, Bretton Woods, N.H., July 1 to 22, 1944. His next appointment was that of federal loan administrator, succeeding Jesse Jones. In early April 1945, he became war mobilization director, succeeding James F. Byrnes. Mr. Vinson is a graduate of Kentucky Normal College and Centre College (Ky.). He began the practice of law in 1911; from 1921–24, was commonwealth attorney for the 32d judicial district. Kentucky. He became a member of Congress in 1923. His wife is the former Roberta Dixon of Louisa, Ky.; he has two sons—Frederick Moore, Jr. and James Robert.

VIRGIN ISLANDS, British. See LEEWARD ISLANDS (B.W.I.).

VIRGIN ISLANDS OF THE UNITED STATES. A West Indian insular possession east of Puerto Rico, forming part of the chain of islands between the Caribbean Sea and the Atlantic Ocean. In addition to 50 small islets or cays (mostly uninhabited), the possession comprises three islands with a combined land and water area of 133 square miles (St. Thomas, 32 square miles; St. Croix, 82 square miles; and St. John, 19 square miles). At the 1940 census the population totaled 24,889 (St. Thomas, 11,265; St. Croix, 12,902; and St. John, 722). According to the 1930 census, 78.3 per cent of the total population was Negro and 12.4 per cent mixed. Charlotte Amalie (pop. 9,801), on St. Thomas, is the capital and chief port; on St. Croix are the towns of Christiansted (4,495), which is also a port, and Frederiksted (2,498). The islands were purchased from Denmark for $25,000,000 in 1916, and were proclaimed a United States possession Jan. 25, 1917.

Government.—The Virgin Islands possession is within the jurisdiction of the Department of the Interior. Administration is headed by a governor (Charles Harwood assumed office Feb. 3, 1941), who is assisted by a Legislative Council empowered to enact laws applicable to the possession as a whole; the Legislative Council has a membership of 16, comprising the 7 members of the Municipal Council of St. Thomas and St. John, and the 9 members of the Municipal Council of St. Croix, meeting in joint session annually. Members of the munipical councils are elected bi-annually, the franchise being vested in residents of the possession (men and women) 21 years of age or over, who are citizens of the United States and able to read and write the English language. Revenue of the possession in 1943–44 amounted to $1,880,000 and expenditure was estimated at $1,972,000.

Education.—The two municipal councils conduct distinct school system, each with a board of education and a superintendent of education appointed by the Secretary of the Interior; education is compulsory for all children between the ages of 5½ and 15 years. The Municipal Council of St. Thomas and St. John conducts 12 public schools; and that of St. Croix, 10 schools. Within the possession are also 6 private and parochial schools. On St. Thomas is a teacher-training institute.

Production.—Sugar cane plantations and stock farms are the principal agricultural activities. Rum is distilled from the sugar, and bay rum is derived from the refined oil of leaves of the bay trees of the island of St. John. In 1942, 675,011 proof gallons of rum were exported. While most of the revenues of St. Croix come from agricultural pursuits, those of St. Thomas are obtained largely from commerce, trade and shipping; since outbreak of the war, defense activities have brought considerable prosperity to the latter island. Although federal deficit appropriations continue to be necessary in the case of St. Croix, since 1942 revenues have sufficed to meet ex-

penditures in the case of the municipality of St. Thomas and St. John.

VIRGINIA. South Atlantic state, United States; one of the original thirteen states. Population (1940): rural, 1,733,098; urban, 944,675; total, 2,677,773. Land area, 39,899 square miles, divided into 100 counties. Chief cities, with 1940 populations: Richmond, the capital, 193,042; Norfolk, 144,332; Roanoke, 69,287; Portsmouth, 50,745; Lynchburg, 44,541; Newport News, 37,067; Alexandria, 33,523; Danville, 32,749; Petersburg, 30,631.

Chief State Officers, 1945.—Governor, Colgate W. Darden, Jr.; lieutenant governor, William M. Tuck; secretary of state, Ralph E. Wilkins; treasurer, W. Tayloe Murphy; comptroller, Henry G. Gilmer; attorney general, Abram P. Staples. William M. Tuck of Richmond was elected governor in 1945 for the term 1946–50.

Judiciary.—Chief justice of the Virginia Supreme Court of Appeals, Preston W. Campbell; associate justices, Henry W. Holt, Edward W. Hudgins, Herbert B. Gregory, George L. Browning, John W. Eggleston, C. Vernon Spratley.

Legislature.—The state General Assembly (Senate, 40 members; House of Delegates, 100) convenes biennially on the second Wednesday in January, in even years.

Education.—At last report (1943–44), there were 3,402 public elementary schools in the state, with 10,940 teachers and 423,815 pupils; elementary school teachers received an average yearly salary of $1,150. There were 576 public high schools, with 4,120 teachers and 121,049 students; high school teachers received an average yearly salary of $1,469. Education in Virginia is compulsory for all children between the ages of 7 and 16, inclusive. There are four teacher training schools in the state. Total state appropriation for education (1943–44), $16,709,980.

Finances.—Following is a statement of Virginia's finances for the fiscal year 1944–45, supplied by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$ 23,448,795.65
Receipts, 1944–45	203,217,622.66
Total	$226,666,418.31
Disbursements, 1944–45	206,728,229.00
Balance, beginning of fiscal year 1945–46	$ 19,938,189.31

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Production Preliminary 1945
Corn (1,000 bu.)	34,502	34,272	37,913
Oats (1,000 bu.)	2,303	3,672	3,892
Buckwheat (1,000 bu.)	132	132	122
Wheat (1,000 bu.)	7,902	11,275	8,712
Barley (1,000 bu.)	1,538	2,124	1,998
Rye (1,000 bu.)	520	636	490
Hay:			
Alfalfa (1,000 tons)	109	133	175
Clover and timothy (1,000 tons)	461	392	529
Tame (1,000 tons)	1,236	1,357	1,738
Soybeans for beans (1,000 bu.)	680	945	1,581
Peanuts (1,000 lbs.)	166,981	191,180	180,400
Sweet potatoes (1,000 bu.)	3,801	3,960	3,795
Tobacco (1,000 lbs.)	104,382	144,691	150,210
Potatoes (1,000 bu.)	9,770	5,976	8,694
Apples (1,000 bu.)	10,903	14,580	3,330
Peaches (1,000 bu.)	1,110	2,150	536
Pears (1,000 bu.)	349	428	73
Grapes (tons)	1,930	1,800	350

VITAMINS. See under Food Research.

VOCATIONAL EDUCATION. See Education, Review of.

VOLCANO ISLANDS. A string of three small volcanic islands in the western Pacific, south of the Bonin Islands and northwest of Guam in the Marianas, between 24° and 26° N. and 141° and 142° E., which were annexed to the Japanese Empire in 1891. From north to south the islands are named, respectively, Kita Iwo Jima, Iwo Jima, and Minami Iwo Jima (*jima* meaning island). For the Battle of Iwo Jima see under Marine Corps, U.S.

W

WAC. See Women's Army Corps.

WAGE AND HOUR AND PUBLIC CONTRACTS DIVISIONS. Provisions of the Acts.—The Wage and Hour and Public Contracts divisions of the U. S. Department of Labor are under the direction of one administrator. The Public Contracts Division administers the Walsh-Healey Public Contracts Act of 1936 whose stipulations are written into government supply contracts over $10,000. The act provides for the payment of prevailing minimum wages as determined by the Secretary of Labor, overtime pay at the rate of time and one half, the basic rate for all hours worked over eight in a day or 40 in a week, safety and health standards, and restrictions on child and convict labor. During the last war year, coverage under this act was at its highest point since the act went into effect. In the first 11 months of the year ended June 30, 1945, 117,333 contracts were reported to the divisions, exclusive of secret, confidential, and restricted contracts, indicating that the total number for the entire year would be in the neighborhood of 128,000 contracts with an estimated value of $34,000,000,000. This compares with fewer than 4,000 contracts valued at less than $200,000,000 in the first fiscal year of the act's operation.

The Wage and Hour Division administers the Fair Labor Standards Act of 1938 which provides minimum wages and time and one half overtime pay for all hours worked over 40 in a week for workers engaged in interstate commerce or the production of goods for interstate commerce unless they are specifically exempt. The act also forbids "oppressive" child labor. A minimum wage of 40 cents an hour is now in effect for all workers protected by the act. As of the spring of 1945, the act covered some 20,000,000 workers, in about 530,000 establishments.

Enforcement.—In the six years and nine months that the Fair Labor Standards Act had been in

force through June 1945, about $85,000,000 in restitution of illegally withheld wages had been agreed to or ordered paid to almost 2,500,000 workers in more than 110,000 establishments, with more than two fifths of the cases involving failure to pay the minimum wage of 40 cents an hour or less. More than this amount has probably been collected in addition over the period, through private action or negotiation by employees and their unions under a section of the act that provides double damages for failure to pay the minimum wage or time and one half overtime after 40 hours a week.

During the year ended June 30, 1945, 44,271 inspections for compliance with both acts were completed by the divisions. This was 19 per cent fewer than in the previous year because of a wartime cut in staff. Of these, 42,613 establishments were found covered and nonexempt as to the wage and overtime provisions; 32,834 or 74 per cent were found in some violation, while 22,259 or 50 per cent were in violation of the minimum wage or overtime provisions. Although about $2,800,000 less than the previous year's total, restitution of $15,824,377 of illegally withheld wages had been found due and ordered paid to 442,516 workers in 19,064 establishments. Failure to pay the minimum wage was involved in more than a fourth of these cases and restitution of such minimum wages affected 77,057 workers, about one sixth of all the workers found to be illegally underpaid.

Many establishments are covered under both acts so that it is impossible to give separate figures for restitution, which in many cases would be due under either act. Of the 44,271 inspections completed during the year, 9,384 were made under the Public Contracts Act, all but 160 of which were concurrent with wage-hour inspections. In 53 per cent of the public contracts inspections, violations were found and in 32 per cent, violations of the minimum wage or overtime provisions.

During the year approximately 4,500 establishments employing minors in violation of the Fair Labor Standards Act or without certificates were reported to the Children's Bureau by the Wage and Hour and Public Contracts divisions. Over two-thirds of these establishments were, in violation of the act's child labor provisions, employing an estimated total of 10,000 minors in "oppressive" child labor. Over 30 per cent more establishments were found in violation than during the preceding year and nearly 180 per cent more than during 1943, while the number of minors illegally employed increased almost 90 per cent over 1944 and more than 400 per cent over 1943.

The child labor provisions of the Public Contracts Act provide that no boy under 16 or girl under 18 shall be employed on government contracts in excess of $10,000. A former wartime exemption permitting employment of girls between 16 and 18 years of age under certain conditions has been revoked, so that under no circumstances can girls under 18 be employed on contracts awarded after Sept. 4, 1945. Liquidated damages of $10 are imposed for each day each minor is employed under conditions prohibited by the act. During the year 700 firms were thus assessed for child labor violations involving almost 4,400 minors. The liquidated damages amounted to almost $800,000, more than twice the amount so assessed the year before. Although inspections under the Public Contracts Act decreased from the previous year, through a decrease in staff, the number of establishments found violating the child labor provisions increased by about 55 per cent.

Following the Supreme Court's decision in *Gemsco* v. *Walling*, which sustained the administrator's authority to prohibit industrial homework in Industry Wage Orders issued under the Fair Labor Standards Act, an extensive homework enforcement program was initiated during the year in the seven industries in which homework is restricted. These industries are jewelry manufacturing, gloves and mittens, knitted outerwear, button and buckle manufacturing, women's apparel, handkerchief manufacturing and embroideries. In these industries homework is limited to workers who are granted certificates because they are unable to adjust to factory employment due to age, or physical or mental disability, or who are homebound through care of an invalid. The employee applicant must have been engaged as a homeworker in the industry prior to a date specified in the regulations unless the requirement would result in unusual hardship to the homeworker. Since April 1945, when the enforcement program began, many employers who have been in violation of the certificate requirements since 1942 have voluntarily come into compliance.

Litigation.—During the year, proceedings for injunctions against future violations of wage and hour provisions were instituted in 371 cases, as compared to the 347 cases instituted during the previous year. Of these, 106 were contested cases; last year there were only 77 contested cases. There were 39 cases in which criminal prosecutions were instituted and an additional 39 cases in which the Department of Justice authorized criminal prosecutions which had not yet been commenced at the close of the year.

The United States Supreme Court rendered decisions in 11 cases involving the wage and hour provisions of the Fair Labor Standards Act. The most significant of these were three concerning the interpretations of the overtime provision of the act: *Walling* v. *Helmerich & Payne*, *Walling* v. *Youngerman-Reynolds Hardware Co.*, and *Walling* v. *Harnishfeger Corp.* All three disapproved wage agreements designed to avoid payment of overtime premium, and made it clear that agreements stipulating a rate which is not the actual regular rate do not meet the statutory requirements. The court held that the "regular rate" must reflect all payments which are made to the employee for the normal nonovertime workweek, including the full amount of piecework earnings and incentive bonuses.

Another decision of great public interest was *Jewell Ridge Coal Corp.* v. *United Mine Workers of America, Local No. 6167*, which held that underground travel in bituminous coal mines was work or employment compensable under the act.

Of considerable importance also were the cases of *Armour & Co.* v. *Wantock*, and *Skidmore* v. *Swift & Co.*, in which the Supreme Court upheld the administrator's view that waiting time during which the employee is required to be on the employer's premises on call may constitute working time even though the employee is idle during such time.

Exemptions.—In the field of exemptions the Supreme Court decision of the previous year in the case of *Addison et al.* v. *Holly Hill Fruit Products, Inc.*, invalidating the administrator's definition of "area of production," raised problems of considerable importance to food processing industries employing a million and a quarter

workers. Following the decision, the administrator proceeded with a new effort to define "area of production" in the light of the court decision.

There was a noticeable decline in the number of learner certificates issued during the fiscal year, due in large part to the general rise in wage levels during the emergency period, which made a subminimum rate for learners unnecessary to prevent curtailment of employment opportunities. During the year a total of 1,213 applications was received and 1,002 certificates were issued, as compared with 2,100 applications and 1,753 certificates the previous year and 3,853 applications and 3,313 certificates the year before that.

NOTE: Copies of the Fair Labor Standards Act, Public Contracts Act, and various rulings, interpretations, and explanatory pamphlets relating to these acts can be obtained free from the divisions' national office, 165 West 46th Street, New York 19, N.Y., or any regional office.

Information and Compliance Branch, Wage and Hour and Public Contracts Divisions.

WAGE RATES. See LABOR CONDITIONS IN THE UNITED STATES.

WAINWRIGHT, Jonathan Mayhew, United States Army officer: b. Walla Walla, Wash., Aug. 23, 1883. On May 6, 1942, as United States commander in the Philippines, after General MacArthur's transfer to Australia, General Wainwright had the bitter task of surrendering Corregidor and survivors of the Philippine campaign to the Japanese. Three years, three months, and ten days later—on Aug. 16, 1945—he was freed by American parachutists from a prisoner-of-war camp in Manchuria. On August 29, in Chungking, China, General Wainwright received the Distinguished Service Cross for extraordinary heroism in northern Luzon in the Philippines; the award covered the period from Dec. 21, 1941–Jan. 5, 1942. On September 2 (Tokyo time), aboard the battleship *Missouri* in Tokyo Bay, he witnessed the formal surrender of the Japanese to the Allies. Flown from Tokyo to Baguio in the Philippines the following day, he accepted the surrender of Japanese Lieut. Gen. Tomoyuki Yamashita and his once great Philippine army. He was accompanied by British Lieut. Gen. Arthur E. Percival, who had been defeated by Yamashita at Singapore in February 1942. On September 10, General Wainwright was awarded the Medal of Honor, the nation's highest military decoration, by President Truman.

A West Point graduate (1906), General Wainwright served with the 82d Division and the American Third Army in the First World War. He later attended the Command and General Staff School and the Army War College. He was ordered to the Philippines in October 1940; fought through the Bataan campaign; and in March 1942, succeeded General MacArthur as Philippine commander, receiving the rank of lieutenant general (temporary). On Sept. 6, 1945, he was promoted full general.

WAITE, Merton Benway, American horticulturist, botanist, and plant pathologist: b. Oregon, Ogle County, Ill., Jan. 23, 1865; d. Washington, D.C., June 5, 1945. An internationally known specialist in fruit diseases, and associated with the United States Department of Agriculture for over 50 years, Dr. Waite is credited with the discovery that plant diseases may be spread by insects. Dr. Waite studied botany, mycology, and bacteriology and other sciences at the University of Illinois, where he took his B.S. degree in 1887. He joined the scientific staff of the Department of Agriculture the next year. As a result of his studies of pear blight, he found that within certain orchard fruit varieties there must be cross-pollination to produce fruit successfully. This incidental discovery actually revolutionized the planting of apples, pears, sweet cherries, plums, and many other fruits. Dr. Waite retired in 1935, but recently he had been working again, this time as an unpaid collaborator, with his former colleagues in the Bureau of Plant Industry, Soils, and Agricultural Engineering. The author of more than 50 publications on scientific subjects, Dr. Waite was a fellow of the American Association for the Advancement of Science, and a charter member of the American Phytopathological Society.

WAKE ISLAND. A possession of the United States in the North Pacific, 1,500 miles northeast of Guam. The small islet of Wake and two adjoining islets—Peale, to the east, and Wilkes, to the west—enclose a shallow lagoon, the total area being less than four square miles. When annexed by the United States on July 4, 1898, Wake Island was uninhabited. In 1936 a small hotel was built on Peale by Pan American Airways in connection with its transpacific service, and three years later Congress appropriated funds for construction of a submarine and air base on Wake Island. The work was in progress when Japan struck. On Dec. 8, 1941, when an attack was launched by an overwhelming Japanese force, Wake contained a garrison of 516 officers and men (marines, 388; marine air group, 60; and navy personnel, 68) and 1,164 construction workers, a total of 1,680 men. These United States forces, commanded by Lieut. Col. James P. S. Devereux, managed to resist until December 23, when they were compelled to surrender; Devereux subsequently estimated that the success had cost the enemy a loss of 10 ships, 29 planes, and 3,700 men, while American casualties amounted to 96 officers and men. United States air forces raided Japanese installations on Wake intermittently through 1944, and in July 1945 the United States destroyer *Murray* intercepted an enemy hospital ship entering and leaving the anchorage. On August 1, Wake was shelled by battleships of the United States Pacific Fleet and bombed from the air, and a month later the possession was surrendered. The capitulation was made by Rear Admiral Shigematsu Sakaibara, who signed the surrender document aboard the destroyer escort *Levy* on Sept. 4, 1945. Sakaibara, who had commanded Wake since its capture, stated that during enemy occupation 2,000 Japanese had died from malnutrition and other causes.

WAKE-WALKER, Sir William Frederic, British naval officer: b. March 24, 1888; d. London, Sept. 24, 1945. Third sea lord controller of the British Navy since 1942, Admiral Wake-Walker was noted for his services in connection with the evacuation of the British forces from Dunkerque in 1940 and also as admiral of the cruiser squadron which first sighted and then trailed the German battleship *Bismarck* from the Denmark Straits in May 1941. Admiral Wake-Walker reached the rank of captain in 1927, rear admiral in 1939, and vice admiral in 1942. He was made a Companion of the Bath in 1940, received the Cross of the Order of the British Empire in 1941, and was knighted in 1943. When

air patrols reported on May 22, 1941, that the *Bismarck* and *Prinz Eugen* were lying in Bergen Harbor, Norway, preparing to put to sea, the cruisers *Norfolk* and *Suffolk*, the former carrying the flag of then Rear Admiral Wake-Walker, were sent to keep watch on the Denmark Straits between Greenland and Iceland, where they saw the German ships fleeing toward the southwest on May 23. The cruisers hung on while heavier units of the British fleet hastened to the scene, but on the evening of May 24, after a battle during which the British cruiser *Hood*, was blown up, the Germans slipped away. On the morning of May 26, the *Bismarck* was located by a plane about 550 miles west of Land's End. The next morning large warships closed in and among them the *Norfolk* was the first to open fire in the final stage of the action that sent the *Bismarck* to the bottom of the Atlantic on the morning of May 27.

WALES. A division of the United Kingdom of Great Britain and Northern Ireland, often called a principality. It is situated to the west of the central shires of England. For area, population, education, etc., see GREAT BRITAIN.

WAR CASUALTIES. See under WORLD WAR CHRONOLOGY, 1945.

WAR COSTS. According to a survey prepared by James H. Brady and the American University, the Second World War cost a total of $1,154,000,000,000—that is one trillion, one hundred and fifty-four billion dollars—for armaments and war materials alone, while property damage amounted to another $230,900,000,000. The survey, it was stated, did not include the money cost and the property damage resulting from the 10-year war in China, because the figures were unavailable. Mr. Brady placed United States expenditures for war material at $317,600,000,000; Russia's at $192,000,000,000; and the United Kingdom's at $120,000,000,000. The war cost to the Axis powers was placed at $468,939,000,000, of which sum Germany was credited with having spent $272,900,000,000. Italy was estimated to have spent $94,000,000,000, and Japan, $56,000,000,000. See also under TREASURY OF THE U.S.

WAR CRIMES TRIALS. Such trials were instituted in 1945 by the nations allied in the war against the Axis powers. The procedure adopted fell into two divisions: (1) the collection of evidence; and (2) its presentation before national tribunals, where the crimes were localized, or before a specially created court where the crimes had no geographical localization.

The first steps were taken by the United Nations War Crimes Commission (originally, the United Nations Commission for the Investigation of War Crimes), a body constituted on Oct. 20, 1943, as an outcome of the signing in London, Jan. 13, 1942, of the Inter-Allied Declaration on War Crimes. The purposes of the commission, the headquarters of which are in London, were defined as follows: (1) to investigate all cases referred to it by any of the Allied governments of atrocities committed by, or by order of, the nationals of any of the countries at war with any of the United Nations against nationals of the United Nations; (2) to record and assess all available evidence upon such atrocities, and particularly on atrocities organized and committed in accordance with deliberate policy; (3) to report to the governments of the United Nations cases in which the commission is satisfied that an atrocity has been committed, naming, where possible, those whom it considers responsible. Subsequently the commission was instructed, also, to make recommendations to the governments on the methods to be adopted to ensure surrender or capture of those wanted for trial, and on the tribunals by which they should be tried.

Primarily a fact-finding body, the commission investigates evidence and draws up lists of persons who, as a result of examination, are wanted as war criminals; since the commission has no machinery for directly collecting evidence itself, the responsibility for deciding what war criminals should be brought before it, and for submitting the evidence for each case, rests with the individual governments. The commission set up three committees: (1) the Committee on Facts and Evidence, which makes investigations; (2) the Committee on Enforcement, which deals with the means of ensuring that the accused persons shall be tried; (3) the Committee on Legal Questions, which studies technical loopholes in the laws of various countries which might enable a war criminal to escape the consequences of his action. In response to a request by the principal Allies, Argentina, Portugal, Spain, Sweden, and Switzerland agreed to exclude war criminals who might flee to those countries, seeking thereby to escape tribunals established to bring them to justice.

The commission was composed of 16 nations, namely, Australia, Belgium, Canada, China, Czechoslovakia, France, Great Britain, Greece, India, Luxembourg, the Netherlands, New Zealand, Norway, Poland, the United States, and Yugoslavia. While the Soviet Union was not a member of the commission, it had an observer sitting with that body. All 16 members established national war crimes offices in London, where each collects evidence on the war crimes committed against its own nationals. First chairman of the commission was Sir Cecil Hurst, the commissioner for Great Britain; in January 1945 he resigned, the chairmanship then going to Lord Wright who, although commissioner for Australia, is a judge of the British High Court. Lieut. Col. Joseph V. Hodgson was appointed commissioner for the United States by President Truman on May 12, 1945; prior to the war he was attorney general of Hawaii. The Allied governments accepted the three-point plan submitted by the War Crimes Commission in October 1944 for the trial of war criminals: the majority of war criminals were to be tried and punished by national courts in countries where the crimes were committed against their nationals or other victims; Allied military courts were to deal with war criminals in enemy countries occupied by the Allies; and United Nations tribunals were to be specially constituted to try leading war criminals not guilty under existing national laws or international law, as well as criminals accused of committing crimes in more than one country. The first two points of the plan were put into effect within a short period after V-E Day. National courts tried and sentenced such well-known figures as Marshal Henri Pétain, Pierre Laval, and Vidkun Quisling; and United States and British military courts were set up in the respective zones of occupied Germany to deal with such war criminals as those responsible for the atrocious conditions in internment camps. A longer time was required to create and set in motion the machinery for the United Nations tribunals.

International Military Tribunal.—This tribunal to try those whose war crimes had no geograph-

ical localization was evolved by a committee of representatives of Great Britain (Sir David Maxwell, lord chancellor), the United States (Robert H. Jackson, associate justice of the United States Supreme Court), the Soviet Union (Maj. Gen. I. T. Nikitchenko, vice president of the Supreme Court of the USSR), and France (Robert Falco, councilor of the Court of Cassation). The committee sat in London from June 26, 1945, until August 8, when they announced that entire agreement had been reached and published the charter of the International Military Tribunal. The procedure adopted represented a compromise between Anglo-American and European principles, an accused being assumed innocent until proved guilty (Anglo-American) and an accused being compelled to testify (Franco-Russian). While the permanent seat of the tribunal was placed in Berlin, Nürnberg was selected as the place of the first trials. The tribunal was to consist of four judges, each with an alternate, these being appointed by each of the signatories. The charter defined three categories of acts coming within the jurisdiction of the tribunal: (1) crimes against peace (planning, preparation, initiation, or waging of a war of aggression or of war in violation of international treaties); (2) war crimes (violations of the laws or customs of war—including ill-treatment of civilians and prisoners of war); and (3) crimes against humanity (inhumane acts committed against any civilian population before or during the war).

The judges (and their alternates), appointed after publication of the charter, were as follows: United States—Francis Biddle, former attorney general (John J. Parker, judge of the Fourth Circuit Court of Appeals); Great Britain—Sir Geoffrey Lawrence, lord justice of the Court of Appeals (Sir William Norman Birkett, member of the High Court of Justice); Soviet Union—Maj. Gen. I. T. Nikitchenko (A. F. Volshkoff); and France—Henri Donnedieu de Vabres (Robert Falco). Chief prosecutors for the respective countries at the war crimes trials were as follows: United States, Robert H. Jackson; Great Britain, Sir Hartley Shawcross, attorney general; Soviet Union, R. A. Rudenko; and France, Charles du Bost. On October 9 the judges met for the first time in Berlin, and there, on October 18, the court of the International Military Tribunal was opened. With Major General Nikitchenko presiding over the bench of judges, a 30,000-word indictment was presented by the prosecutors, in English, Russian, and French, charging 24 of Germany's war leaders with plotting and starting the Second World War, murdering more than 10,000,000 civilians and prisoners of war, and plundering Europe on a scale unprecedented in history. The indictment contained four counts, and to it was attached three appendices. *Count 1* was Conspiracy—formulation or execution of a common plan or conspiracy to commit crimes against peace, war crimes, and crimes against humanity; *Count 2*, Crimes against Peace—planning, preparing, initiating, and waging wars of aggression in violation of international treaties, agreements, and assurances; *Count 3*, War Crimes—the practice of total war, which included methods and practices in direct conflict with the laws and customs of war; and *Count 4*, Crimes against Humanity—the murder and persecution of all who were, or were suspected of being, hostile to the Nazi Party and to the Nazi Party's grand conspiracy to rule the world.

Appendix A named the 24 German defendants at the first trial before the International Military Tribunal; the counts against each man are indicated in the following list:

(a) Göring, Hermann Wilhelm, Reich minister for air
(a) Ribbentrop, Joachim von, Reich foreign minister
(a) Hess, Rudolf, deputy to the führer
(b) Kaltenbrunner, Ernst, chief of the Gestapo
(a) Rosenberg, Alfred, responsible for the Nazi Party's spiritual and ideological training
(b) Frank, Hans, governor general of occupied Polish territories
(b) Bormann, Martin, deputy to the führer
(a) Frick, Wilhelm, minister of the interior
(b) Ley, Robert, leader of the Labor Front
(a) Sauckel, Fritz, commissioner for forced labor
(a) Speer, Albert, minister of production
(a) Funk, Walther Immanuel, minister of economics
(c) Schacht, Hjalmar, president of the Reichsbank
(d) Papen, Franz von, ambassador to Turkey
(a) Krupp, von Bohlen und Halbach, Gustav, armament manufacturer
(d) Neurath, Konstantin von, protector for Bohemia and Moravia
(e) Schirach, Baldur von, Nazi Youth leader
(a) Seyss-Inquart, Artur, Reich commissioner for occupied Netherlands
(e) Streicher, Julius, editor of *Der Steurmer*, anti-Semitic weekly
(a) Keitel, Wilhelm von, chief of the German Army High Command
(a) Jodl, Alfred Gustav, member, German Army General Staff
(f) Raeder, Erich, commander in chief, German Navy (1935–43)
(f) Doenitz, Karl, commander in chief, German Navy (1943–45)
(b) Fritzsche, Hans, minister of propaganda

(a) all counts; (b) counts 1,3,4; (c) counts 1, 2; (d) counts 1, 2, 4; (e) counts 1, 4; (f) counts 1, 2, 3.

Martin Bormann was not in custody at the time the indictment was presented, and Robert Ley committed suicide in prison at Nürnberg, on October 25, while awaiting the opening of the trial.

Appendix B named groups or organizations which, in the words of the indictment, "should be declared criminal by reason of their aims and the means used for the accomplishment thereof and in connection with the conviction of such of the named defendants as were members thereof." These groups or organizations comprised the Reich Cabinet, the Leadership Corps of the Nazi Party, the SS guard, the Gestapo, the SA guard, and the German General Staff and High Command. *Appendix C* of the indictment set out charges and particulars of violations of international treaties, agreements, and assurances caused by the defendants in the course of planning, preparing, and initiating the wars.

The International Military Tribunal set November 20 as the date for commencing the trials in Nürnberg, with Lord Justice Lawrence presiding. When the case opened pleas of not guilty were entered by all the defendants except Ernst Kaltenbrunner, who was absent on account of illness. Rudolf Hess at first feigned amnesia, but later admitted that he had been pretending and that he was prepared to answer for his acts. Prosecution was featured by the reliance placed upon presentation of documentary evidence, of sound recordings of conversations, and of motion pictures, rather than on the calling of individual witnesses. An exception was the appearance of Maj. Gen. Erwin Lahousen, of the German Army Intelligence, who testified that Keitel personally ordered the execution of the French generals Giraud and Weygand; the order was, however, frustrated by Admiral Wilhelm Canaris, at that time chief of Intelligence, who was later involved in the 1944 bomb plot against Hitler and executed. By the end of the year, the prosecution had not completed the presentation of evidence, and with scores of witnesses to be sum-

moned by the defendants, the trial was far from concluding.

War crimes trials were also planned for the Orient. In June 1944 a subcommission of the United Nations War Crimes Commission was set up in Chungking to investigate the situation in the Far East and Pacific areas. The Chungking subcommission was composed of representatives of Australia, Belgium, China, Czechoslovakia, France, Great Britain, India, Luxembourg, the Netherlands, Poland, and the United States; Dr. Wang Chung-hui, the Chinese representative, served as chairman. First of the Japanese leaders to be arraigned was Gen. Tomoyuki Yamashita, commander in the Philippines the last 11 months of the war, whose trial opened in Manila on October 29 before a United States Military Commission, a five-man body headed by Maj. Gen. R. B. Reynolds. Failing in an appeal to the United States Supreme Court for a hearing before that tribunal, Yamashita was convicted on December 7 of responsibility for atrocities committed by Japanese troops in the Philippines during his period of command, and was sentenced to death by hanging. A stay of execution was ordered on December 17 until the Supreme Court could rule on his application for a writ of habeas corpus and his challenge of the authority of the military court. In order to preclude such appeals in subsequent cases. General MacArthur ordered that defendants henceforth should be placed under the jurisdiction of the Allies instead of under that of the United States alone. See also LAW—SECTION 11.

WHEELER B. PRESTON,
Author and Publicist.

WAR DAMAGE CORPORATION. See INSURANCE.

WAR INFORMATION, Office of. See OFFICE OF WAR INFORMATION.

WAR LABOR BOARD, National. The year 1945 saw the operations of the National War Labor Board reach full and fairly stable maturity during the first six months but, following the August victory over Japan, brought a gradual liquidation of the board's activities and final termination of the agency on December 31 under Executive Order 9672. The executive order ended a four-year program for peaceable settlement of labor-management disputes by government arbitration, but transferred the modified wage stabilization program—second of the WLB's two wartime assignments—to a newly-created National Wage Stabilization Board.

Probably the major action of the board during the initial six months, while the agency was in active operation, was a report of public members to the president on February 20 recommending that no change be made in the Little Steel Formula, a basic wage stabilization device under which general wage increases were permitted for groups of employes up to a limit of 15 per cent above the level of Jan. 1, 1941, to offset advances in the cost of living. Liberalization of the rule has been requested by both the American Federation of Labor and the Congress of Industrial Organizations, and separate comments objecting to the findings of the public members were submitted by both the AFL and CIO members of the board. Industry members agreed with the recommendation but objected to the further recommendation that war-caused innovations in industrial practices be made post-war norms. Basic conclusions of the report were that upward revision of the formula would bring about a new round of general wage increases such as threatened the stability of the economy in 1942, and that wage controls should be ended only as a part of a broad economic plan to assure high levels of civilian production and employment in the post-war economy.

Other significant developments of the early part of the year included the board's decision of February 21 ordering 55-cent minimum wages for the New England and Southern textile industries to correct substandards of living and calling, as well, for "balanced and properly aligned" wage structures; the February 21 denial of general wage increases to packinghouse workers (but with an order for the parties to negotiate well-balanced wage structures), and a July 21 decision holding the War Labor Disputes Act superior to any state law in connection with a contested maintenance of membership clause in a union contract with a St. Joe, Fla., paper company case. A court test of the power of the president to seize a non-war establishment (Montgomery Ward & Company) for defiance of board orders resulted in a decision of the Chicago District Federal Court on January 27, holding such seizure illegal, but the decision was reversed by a U.S. Circuit Court of Appeals on June 8. (A final adjudication of this legal point appeared unlikely in view of subsequent refusal of the U.S. Supreme Court to review the case on the ground that the issue was "moot" because seizure of the property had been terminated.)

With the collapse of Japan on August 14 and sudden shift of economic trends, there started, however, a succession of changes in the disputes and wage stabilization programs and in the War Labor Board itself. In his statement of August 16 the president announced a relaxation of wage controls consistent with a loosening of the labor market and also a program to terminate the War Labor Board as a disputes-settling agency "as soon after conclusion of the forthcoming industry-labor conference as the orderly disposition of the work of the Board, and the provision of the War Labor Disputes Act permit; and after facilities have been provided to take care of the wage stabilization functions under the Act of October 2, 1942." Two days later, on August 18, the broad plans announced by the president were more carefully defined in Executive Order 9599 directing the War Labor Board to continue wage controls with such modifications as were necessary to prevent either inflation or deflation, and to move as rapidly as possible toward the removal of controls and toward the restoration of collective bargaining. In the field of wage stabilization, the board acted promptly with adoption of General Order 40, which—for the first time since October, 1942—permitted employers to make wage increases not affecting prices without prior approval of the board. An exception was made in the case of the building and construction industry, in which controls were continued on the former footing. In the field of industrial relations, the board urged the parties in some 3,000 pending disputes to renew collective bargaining and to settle the issues without further recourse to the government. New dispute cases were accepted by the board and its agencies only upon joint agreement of the parties.

On September 19, Executive Order 9617 was issued transferring the War Labor Board, and certain other war agencies, to the Department of Labor. This, however, did not tangibly alter the character of the board inasmuch as the agency was preserved as an entity within the Department of Labor, with autonomy over its powers,

personnel, funds and other administrative operations. Likewise, correspondence with the Secretary of Labor established that the board was to retain full autonomy over its policies and decisions.

The board's termination program was speeded again in October with announcement that, effective October 22, the board would not hear the merits of any new disputes cases and would accept such cases only for the purpose of appointing an arbitrator to hear and decide the issues. In the meantime, the board fixed Jan. 1, 1946, as its final termination date and laid plans for disposing of all pending matters before that date. The month also brought the issuance of Executive Order 9651 amending Executive Order 9599 and setting up standards for approval of wage increases which may be used by employers as a basis for obtaining higher prices.

In November, as requested by the president, the board moved toward providing facilities for continuance of the wage stabilization program by setting up within the framework of the board a six-member Wage Stabilization Division of tripartite composition to rule upon voluntary wage applications involving "price relief," to rule upon all wage decrease cases (all wage decreases continued to require prior approval of the board) and to deal with other phases of the program. The wage-price policies to be applied by the division and related government agencies were set forth in greater detail on December 5 by Stabilization Administrator John C. Collet and the practical application of these policies was spelled out fully in a series of regulations issued by the division on December 27. These regulations explained that with the exception of certain increases in the basic steel industry and the building and construction industry, "the general rule is established that wage or salary increases may be made lawfully in any amount and at any time without the approval of the National War Labor Board." With the two exceptions, the sole effect of approval of a wage increase application was to permit the increase to be used as a basis for higher prices, rents or costs of goods furnished to the government. Denial of an application, however, did not prevent the applicant from placing into effect immediately all or any part of the proposed increase, and did not mean that such increase was unlawful under the wage stabilization laws or that it was disapproved by the government. Conforming to the policies of the executive orders and the stabilization administrator, the regulations permitted approval of "cost of living" wage increases for groups of employes whose average straight-time hourly earnings had not risen 33 per cent above the level of 1941; wage increases to correct inequities between plants by comparison of rates within a plant with the average rates currently prevailing in an industry or area, and wage increases necessary to overcome manpower shortages in certain "bottleneck" industries which constituted interference with the national reconversion program.

The final step in the liquidation of the board came on Dec. 31, 1945, when Executive Order 9672 terminated the agency and created a National Wage Stabilization Board to carry on the wage control functions. Physically, the members and staff of the new board were drawn from those of the previously-operating Wage Stabilization Division and the expired War Labor Board. W. Willard Wirtz, chairman of the division, was named chairman of the NWSB.

With termination of the War Labor Board, it becomes possible to review its work and to determine the extent to which it achieved its two objectives of minimizing war-time disputes and of stabilizing the general wage levels to combat inflation.

In the first of these tasks, the National Board and its agencies from Jan. 12, 1942, to Aug. 18, 1945, dealt with 17,807 disputes which were deemed threatening to the war effort and issued decisions, normally involving many issues, affecting approximately 12,300,000 employes. Probably the most significant yardstick of the agency's effectiveness is the fact that the percentage of all working time lost by strikes and lockouts from Pearl Harbor until V-J Day was 11/100 of 1 per cent as compared with 27/100 of 1 per cent in the five peace-time years 1935–39. In other words, operation of the no-strike program reduced the loss of production time during the war to approximately one-third of its peacetime levels. The comparative speed in termination of stoppages is demonstrated by the following table showing the average duration of strikes in the pre-war and wartime years: 1939, 23 days; 1940, 21 days; 1941, 18 days; 1942, 12 days; 1943, five days; 1944, 5½ days.

In accordance with the voluntary no-strike, no-lockout pledge of labor and industry, compliance with the board's decisions came about by voluntary acceptance, rather than by compulsion, in most cases. Of the 17,807 disputes handled up to V-J Day, 50 were turned over to other agencies to compel compliance. In 40 cases seizure was ordered by the president and in four cases economic sanctions were applied by the Office of Economic Stabilization. Six ultimately were settled without action. In 26 of the disputes unions were in defiance; in 23 cases employers were in defiance and in one case both sides defied the order of the board.

While any attempt to measure the effectiveness of the wage stabilization program as administered by the board involves many intangibles, some conclusions may be drawn by a comparison of the average level of urban wage rates before and after inauguration of the program. In the 21-month period from Jan. 1, 1941, to Oct. 2, 1942, urban wage rates in manufacturing industries rose 17 per cent or at a rate of 0.8 per cent a month. In the 34-month period from Oct. 3, 1942, to Aug. 18, 1945, the increase was 13.6 per cent or at a rate of 0.4 per cent a month. Thus the advance of the inflationary spiral was reduced by one-half its former rate of progress. It was estimated further that of the total rise of 13.4 per cent during the period of control, about one third could be ascribed to immediate increases granted by the WLB, with most of the remainder resulting from increased output of incentive workers, more liberal management policies in the matter of merit increases and other factors outside the jurisdiction of the agency.

While the basic wage rates were being held in line, however, total wages were permitted to advance so that the increase in straight-time hourly earnings (adjusted to discount increases caused by shift of workers to higher-paid industries) amounted to 40.5 per cent from Jan. 1, 1941, to July 1945. In the same period the cost of living advanced by an estimated 33 per cent. Thus, it appeared that real hourly wages—the amount of wage paid in a job for an hour of work—were slightly higher at the close of the war than on Jan. 1, 1941.

During the entire period of wage stabiliza-

tion, from Oct. 3, 1942, to Aug. 17, 1945, the National Board and its agencies ruled upon 412,543 voluntary requests for wage adjustments and allowed increases (in original decisions before appeals) in whole or in part in 353,749 instances, affecting the earnings of 23,233,000 workers. Of these workers, 10,916,000 received immediate increases in basic wage rates averaging 6.1 cents an hour, while the remaining 12,317,000 received either non-immediate increases in basic wage rates or such other benefits as paid vacations, shift differentials and the like. In settlement of disputes, 1,915,000 workers received an average immediate increase in basic wage rates of 5.6 cents an hour, while another 3,577,000 workers received other benefits affecting their wages. (Statistics in disputes cover three-fourth sample of cases.)

Distribution of increases appeared to vary little between the union groups, and between the union and non-union groups. In voluntary cases, the average immediate increases approved by the board were distributed as follows: AFL unions, 5.3 cents an hour; CIO unions, 4.8 cents an hour; independent unions, 4.7 cents an hour; unorganized employes, 6.5 cents an hour. In dispute cases, the averages were: AFL unions, 5.8 cents an hour; CIO unions, 5.3 cents an hour; independent unions, 6 cents an hour.

JOHN A. STUART,
Assistant Information Director, National Wage Stabilization Board.

WAR MANPOWER COMMISSION (WMC). Activities of the War Manpower Commission in 1945 were directed toward improving, extending, and in some measure standardizing the national pattern of labor controls that had been built throughout 1944. Although there was no overall labor shortage in the early part of 1945, a lack of skilled labor in certain vital industries caused production of some critical items to fall short of demands. In January, a total of 180,000 workers were needed immediately in 1,500 widely scattered plants producing vital war materials. Such "spot" shortages necessitated intensive interregional recruitment campaigns. For the critical atomic bomb projects alone, 300,000 workers were recruited by the U.S. Employment Service (USES), 179,000 of these through interregional recruitment from practically every state in the country. For the first half of 1945, manpower needs, including the armed services, were estimated at 1,500,000. Because the overall labor supply was as yet tight and relatively inflexible, intensive effort was still required to recruit enough workers for the right plants at the right time. Through interregional recruitment, 221,800 placements were made in top-priority jobs in 1945 through June.

The Veterans' Employment Service of the U.S. Employment Service steadily expanded its program of job counseling and placement of veterans as the number of returning servicemen and women increased. A veterans' representative is available in each of the 1,725 permanent USES offices. Each representative, himself a veteran, is well qualified to handle the special types of job problems that confront the veteran. Since January, USES representatives were assigned to army separation centers throughout the country to provide occupational and employment information. As of July, more than 1,000,000 veterans of the Second World War had sought employment, job counseling, or other information at USES offices, and 600,000 Second World War veteran placements were made as of June. In April alone, the USES made 86,000 placements of veterans of all wars and made 13,000 "selective" placements for disabled veterans. A total of 1,400,000 placements for veterans were made by the USES during the period Jan. 1, 1942, to Jan. 1, 1945. Among the tools developed for the proper placement of veterans are "Special Aids for Placing Navy Personnel in Civilian Jobs" and "Special Aids for Placing Military Personnel in Civilian Jobs." These list several thousand typical civilian occupations in which discharged enlisted army and navy personnel can most profitably use skills and experience gained in service. The WMC's Apprentice Training Service, which in January had registered programs in 32,000 business or industrial establishments throughout the country, also had its responsibility for the development of new programs greatly increased by the enactment of the Serviceman's Readjustment Act of 1944. This act specifies apprentice training as a particular method of training through which veterans are entitled to subsistence allowance.

Another specialized service developed by the USES is a simplified selective placement technique for the proper placement of handicapped workers. This carefully matches the physical demands of a particular job against the physical abilities of each applicant. "Selective Placement for the Handicapped" presents a composite of selective placement techniques which have been developed by the USES over a period of years. Through July, the USES had made 220,500 placements of handicapped persons in 1945.

When the early defeat of Germany became evident, the employment trend began to shift. From March 15 to June 15, munitions plant employment declined from 9,000,000 to 8,300,000. In the same period, 29 labor area classifications were revised downward. From V-E Day to August 1, Group 1 (acute shortage) areas dropped from 74 to 46. The defeat of Germany, however, did not eliminate the need for intensive recruitment of workers for war activities vital to the Pacific campaign. The hiring rate for ship repair yards, for example, did not keep pace with enemy attacks on United States ships, and recruitment for ship repair became one of WMC's most urgent programs.

The WMC adapted its program to the transition period between V-E Day and V-J Day by giving area and regional WMC officials extended authority to modify or rescind hiring controls according to developments in the employment situation within individual localities. Manpower programs affected included employment stabilization, employment ceilings, priority referral, and the 48-hour work week. These modifications could be initiated by WMC area directors after consultation with the area management-labor committee.

With the surrender of Japan, the WMC immediately lifted all manpower controls. The U.S. Employment Service, which made 29,400,000 placements during the three-year war period (April 1942 to April 1945), made available its full facilities to *all* employers. Labor was channeled by voluntary methods to civilian industries, especially those in which reconversion bottlenecks were anticipated. All veterans services were expanded and increased emphasis given to job counseling and other personalized services to assist job seekers in adapting their wartime experience to peacetime job opportunities. Displaced war workers, many of whom migrated

during the war, were assisted in finding employment in other communities as civilian production began to expand.

By Executive Order No. 9617, on Sept. 19, 1945, the president transferred War Manpower Commission functions, with the exception of personnel and functions of Procurement and Assignment Service, to the Department of Labor.

PAUL V. MCNUTT,
Former Chairman, War Manpower Commission.

WAR MOBILIZATION AND RECONVERSION, Office of (OWMR). After Congress passed the War Mobilization and Reconversion Act, Oct. 3, 1944, President Roosevelt transferred to the newly created Office of War Mobilization and Reconversion all functions previously assigned to the Office of War Mobilization, established by Executive Order 9347 of May 27, 1943.

The director of OWMR is charged with the responsibility of directing the economic forces of the nation into a co-ordinated war program while maintaining an adequate civilian economy and developing an effective program for the transition from war to peace. In discharging these responsibilities, the director is authorized to: (1) prepare such plans as appear necessary, co-ordinate the plans and procedures of the responsible executive agencies, and keep the various agencies mutually informed of each other's progress; (2) issue to the responsible agencies such directives, orders, and regulations as he deems appropriate for effective war mobilization or reconversion; (3) settle controversies among executive agencies; (4) recommend to the Congress such legislation as appears appropriate and necessary for the execution of the plans developed for the transition from war to peace.

In addition to co-ordinating responsibility for war production and reconversion, the director has a number of particular duties specified in the executive order of the act. These include: (a) studying and recommending appropriate changes in the organization of emergency war agencies and agencies having jurisdiction in the field of manpower; (b) approving the continuation of any prime contracts for war production no longer required for the prosecution of the war in the event he finds that the continuation of work under the contracts is beneficial to the government; (c) maintaining a continuing scrutiny of all current and anticipated war programs; (d) establishing policies to be followed by contracting agencies in selecting individual contracts for curtailment, nonrenewal, or termination, and for full and prompt consultation between the government contracting agencies, war contractors, and representatives of employees of war contractors in order to obtain the most effective use of production facilities for war production or for the maintenance of the domestic economy.

The OWMR includes the following agencies which exercise their functions under the supervision of the director: (1) Office of Contract Settlement created by the Contract Settlement Act of 1944. (2) The Surplus Property Administration, successor (Sept. 18, 1945) to the three-man Surplus Property Board, which under the Surplus Property Act of 1944, succeeded the Surplus War Property Administration, created by Executive Order 9425, in February 1944. The functions of the Office of Economic Stabilization, established Oct. 3, 1942 by Executive Order 9250, were transferred to OWMR, Sept. 20, 1945, by Executive Order 8620. The Retraining and Re-employment Administration, established by Title III of the act creating the OWMR, functioned within the OWMR until Sept. 19, 1945, when it was transferred to the Department of Labor by Executive Order 9617.

The director is advised by an advisory board of 12 members appointed by the president with the advice and consent of the Senate.

James F. Byrnes was the first director of the Office of War Mobilization and continued to serve as director after the functions of the office were expanded by the act of Oct. 3, 1944. Upon his resignation, effective April 1, 1945, he was succeeded by Fred M. Vinson, who took office on April 7. Mr. Vinson was succeeded on July 23, 1945 by John W. Snyder.

ANTHONY HYDE,
Director of Information, OWMR.

WAR POLICY OF THE UNITED STATES. Six years of the most destructive war in history terminated on Sept. 2, 1945, when Japan, last holdout of the Axis, signed the terms of surrender imposed by the Allied Nations. For Japan, original spearhead of the joint drive aimed at world empire, almost fourteen years had passed since the day when her militarists had touched off the most tragic chapter of modern history with their surprise attack on Mukden in 1931. Neither Japan nor her major victim, China, had known the real meaning of peace in all that time. For the Allied Nations and particularly for the United States, last great power to enter the struggle, victory meant full vindication of the moral and military virtues latent in democracy. In that vindication died the opposing principle of slavish self-immolation of the individual in the creation of a militarist superstate. Whether that death is to be followed by a resurrection of the nationalist and racial ambitions which made the war inevitable is a question remaining to be answered by the victorious powers. It was a victorious soldier, Gen. Douglas MacArthur, speaking as supreme commander of the Allied powers on the occasion of Japan's surrender, who epitomized the high purpose of the victors in the following words:

"It is my earnest hope and indeed the hope of all mankind that from this solemn occasion a better world shall emerge out of the blood and carnage of the past—a world founded upon faith and understanding—a world dedicated to the dignity of man and the fulfillment of his most cherished wish—for freedom, tolerance and justice."

The long-range objective has been made clear to victor and vanquished alike. Four months before the final scene was acted out on board the U. S. S. *Missouri* in Tokyo Harbor, Germany's unconditional surrender had been followed by a similar enunciation of Allied principles. Whether or how far they were to be realized, whether on the contrary they may degenerate into pious, unrealized wishes like those which terminated the First World War, depends at the outset on the ability of the Allies to solve their first priority problems. Vast stretches of the most highly developed areas of the Old World lie in utter ruin. A sick civilization is dying amid the rubble and filth left by the collapse of the Axis military machine. The immediate tasks of rescue and healing have been left to soldiers, their mission of mercy complicated by the need of controls strong enough to stamp out any remaining embers of power-mad fascism. In one sense, war has ended. In another, the war to win the peace, to prevent a renewed outbreak of

hostilities has begun. That situation will shape for years to come the military policies of every nation involved. For the United States in particular, it points the way to a complete reorientation of its status in the modern world, and no less of the part played by the armed forces in the drafting and execution of policies.

Down to the final end the general direction and the final objectives of the war policy of the United States continued unchanged from the planned strategy progressively outlined at Cairo, Teheran, and Yalta by the heads of the Allied governments and their military advisers. On the other hand, notable operational modifications became necessary from time to time, chiefly as the result of enemy reaction. The defeat suffered by Allied arms in December 1944 when Marshal Karl von Rundstedt's mechanized drive scored a break-through in the Ardennes area, the unexpected seizure of the Remagen bridge intact by the American 9th Armored Division, the successive delays imposed on the Russians by logistical obstacles and German resistance, and the completeness of Germany's collapse in the closing weeks of the war in Europe were but a few of the events which called for prompt and sound strategic decisions. Similar shifts occurred in the Pacific when, on the one hand, the tenacity of Japanese resistance on Okinawa taxed the full resources of our armed forces; and on the other, the air and naval strikes against Japan's homeland scored an unbroken string of major successes against the sinews and nerve centers of the enemy's last-ditch defenses. By June, two conflicting trends in Japan's policy had placed Allied military leaders in a quandary. On the one hand, Japan's growing weakness pointed to early and complete collapse. On the other, Japan's military leaders obviously were counting, as Hitler had done earlier, on native fanaticism to win the final round. Into the midst of that dilemma dropped two atom bombs, wiping out two of Japan's great modern cities. They tore apart the last shreds of Japan's resolution. They hoisted an emperor out of his mystical obscurity in a Tokyo palace where centuries of tradition had hidden him, bringing his decision to accept the Allies' surrender terms.

For the sake of greater clarity, the 1945 record of United States war policy is presented below on a functional basis, with separate consideration given to the following elements: personnel, operations and training, war production, military government, and plans for postwar policies.

Personnel.—Three major developments of the period threw policies out of gear, necessitating sharp readjustments. The first occurred in December 1944 when Marshal von Rundstedt's powerful drive in the Ardennes disclosed several weaknesses in Allied preparations. Less than five months later came the second, Germany's swift collapse into complete ruin. The third was the welcome but unexpected speed of Japan's collapse. The bloody fighting in the Ardennes, better known as the Battle of the Bulge, made clear how thin Gen. Dwight D. Eisenhower's margin of manpower had been from the day his forces set foot on French soil. In addition, they showed that the supply lines across France were not yet functioning at the pitch of efficiency necessary to maintain all-out operations against a determined and resourceful enemy. From the first, the manpower shortage had been felt most acutely in the category which bears the brunt of the fighting, the infantry. The War Department in January revealed that, over a period of months before, some 500,000 men had been transferred from zone of the interior forces to infantry combat units and replacement centers. Nevertheless, when the crisis occurred, threatening to sever lateral communications between the Americans and their British Allies under Marshal Montgomery, the last reserves had to be thrown in to contain, and finally to roll back, the enemy offensive.

The net effects were felt all the way back to training centers in the United States. At least two combat divisions, earmarked for the Pacific, and other units as well, were hastily shipped to France. Soldiers in Europe, scheduled for return to the United States under established rotation policies, were held pending the outcome of the battle. Replacements who had completed their 17-weeks' basic training course, including a large percentage of 18-year olds, were forwarded for combat duty. The heavy load thrown on American military hospitals revealed the acute shortage of nurses. When nationwide appeals for volunteers failed to furnish the necessary numbers, Congress in February took up consideration of a nurse draft bill which called for the induction of all unmarried registered nurses in the 20-45 age group.

The home front felt the impact of the reverse in other ways. War Mobilization Director James F. Byrnes, in an effort to get more effective use of available civilian manpower, suspended racing meets, tightened up draft rules for professional athletes, froze civilian production to the levels of the fourth quarter of 1944, and denied priority and allocation rights where necessary to maintain manpower ceilings. Of greater import was the president's message to Congress calling for the passage of a national service act. As submitted to the House Military Affairs Committee, this "work-or-fight" bill aimed to end various kinds of manpower waste, particularly those connected with production or services which had little or no bearing on the war effort, and those resulting from heavy labor turnover. Men from 18 to 45 were to be frozen in their jobs or in new war-connected jobs to which they were to be shifted. Penalties proposed for noncompliance were set at limits of five years' imprisonment and $10,000 fines. Like the proposed draft of nurses, the measure encountered enough opposition, particularly from labor, to hold up enactment until the collapse of Germany sent both bills to the waste paper baler.

Germany's defeat promptly set in motion a reverse flow. It was no longer a question of restoring the pre-Bulge Battle policy of sending back 12,000 veterans per month to the United States for furloughs and reassignment. In January the War Department announced its policy for the relief of surplus officers, among them: (1) limited service personnel; (2) recovered prisoners, ineligible for further overseas duty; (3) officers previously called to duty from retired status; (4) specialists whose tasks had been completed; (5) all officers over 38 who desired relief and were no longer needed. In May enlisted men 40 years old or older were ordered discharged, reducing by two years an earlier age limit. The navy still held to the 42 year limit. Plans in the meanwhile had been made to cut the armed forces to the limits deemed necessary for the final offensive against Japan. As announced in June, the reductions were to be as follows: Army Air Forces—2.3 million to 2.1 million; Army Service Forces—1.7 to 1.6; Army Ground Forces—3.2 to 2.3; outside major commands—

1.1 to 1.0. In the process, shifts between components and retraining for new assignments became necessary. In the commissioned grades the War Department reported a surplus of 40,000 officers in the European theater, available for relief. And at home, all retired officers on active duty who were above the age for legal retirement were ordered to be relieved by Dec. 31, 1945. The navy, with its still mounting roster of new ships, found itself unable to match the army in the matter of releasing personnel. Its discharge policy looked to getting rid of the least effective men.

The War Department plan for the discharge of soldiers after V-E Day was based on a system of credits or points awarded on four counts, as follows: 1 point for each month spent in service after May 16, 1940; 1 additional point for each month of overseas service; 5 points for each combat decoration received; parenthood credit, 12 points for each child under 18. Points could be scored only to May 12, 1945, with a minimum of 85 required to place a soldier in the initial eligible list. Exceptions to the blanket rule were made in the case of specialists whose services could not be immediately spared. A second exception gave high-score men the option of remaining in the service. Not a few elected to do so. As for commissioned officers, the War Department left control to the theater commanders to be exercised under policies laid down by the commanding generals of the three major components.

A fly in the soldier's ointment was the shortage of shipping, necessitating considerable delay in return to the United States. First priority was given to two classes: transportable wounded and personnel due for Pacific service after retraining. By mid-July, the last of more than 100,000 wounded were back in the United States. For those awaiting return and not assigned to units occupying Germany, opportunity was given to undertake a wide range of educational courses. For the most part the soldier-students were assembled in "GI Colleges" established at various training centers, there to be instructed by professional teachers, in subjects ranging from the elementary to those of college level. A substantial percentage of the men were helped to matriculate at selected universities in Britain, France, Switzerland and Italy, there to pursue graduate and undergraduate courses. A second useful outlet for soldier energy was found in a sports program, including both training and participation in interunit contests. The best morale booster for all was the fact that shipment rates from the very first outstripped the planned program.

Japan's surrender, followed by initial indications that compliance with General MacArthur's orders would be both general and real, brought a further upward revision in the rate of demobilization. The War Department disclosed to Congress its goal of an army, including the AAF, reduced to a maximum of 2,500,000 by July 1, 1946. The navy planned to cut down to a peacetime total of 58,000 officers and 500,000 enlisted men, along with a Marine Corps of 100,000. Separation rates promised to rise to a maximum in the winter months of 1945–46. All contingents planned to replace their trained veterans with younger men, lacking in battle experience, insofar as conditions in the occupied areas permitted. At the same time the voluntary enlistment of veterans was counted on to preserve nuclei of fully dependable soldiers, sailors, and airmen. An element of confusion was a rising public clamor for elimination of the draft. President Truman countered with a recommendation to Congress that conscription be maintained in force for men in the 18-25 year bracket. The armed forces called on Congress for legislation authorizing a full-scale recruiting drive, admitting as they did so that no more than a minor fraction of the forces needed for occupation duty could be obtained by that means. Estimates of the army's occupation strength needed for an indefinite period of time called for 400,000 in the European theater and a million in the Pacific.

The last weeks of battle brought the casualty total above the million mark, roughly a quarter of whom were listed as killed. Equally depressing was the report of Under Secretary of War Robert Patterson to Congress, showing that as of May 31, more than 33,000 soldiers were in confinement as the result of courts-martial. He added that 102 had thus far suffered the death penalty. Except for one instance of a soldier who had twice deserted in the face of the enemy, resulting in the first execution for purely military crime since the Civil War, these men were found guilty of capital crimes. A more comforting statistic was the reduction in army mortality from disease, one in 2,000 during the Second World War as compared with 14 per 1,000 in its predecessor.

Operations and Training; European Theater.— When the "greatest double-envelopment in history" became an established fact through the linking up of the American First and Ninth armies at Paderborn on April 1, 1945, Germany's last hopes of maintaining a strong enough resistance to induce mild peace terms were forever gone. With the loss of more than 300,000 of her best troops in the enclosed Ruhr pocket and of the industrial resources of that region, went both the means and the will for effective battle. Fanaticism and fear could still support a death struggle against the oncoming Russians. Here and there in the American, British, and French zones occasional groups of bitter-enders fought hard. But for the most part the Germans in the final weeks could be held to their task only by the Gestapo's pistol-backed controls.

The battle of the Ruhr pocket represents the full dividend paid for earlier American successes, for successes won in harder fighting at far heavier cost. From the German point of view the battle was the final penalty of previous mistakes in strategy and execution, and of the greater error of military weakness in the decisive test. The swift recoil of the Americans from their December setback in the Ardennes, the fury of the combined air and ground counterassault on the German elements caught in the Bulge, and the resistless drive thereafter to the Rhine sapped Germany's waning strength. The German Army's failure to destroy the bridge which spanned the Rhine at Remagen before the American forces arrived there on March 8 was more than the mental lapse of some junior officer. In contrast, the platoon of the 9th Armored Division which roared across and neutralized the demolition charges, was acting on more than impulse. A victorious army was making its own luck; a defeated force was breeding its own misfortunes.

A few days after that incident five American divisions were securely established on the east bank of the Rhine. The German High Command, divining an Allied crossing in and north of the

Ruhr area, and having set up a strong defense against such an operation, was suddenly compelled to shift troops south to meet the Remagen threat. Once again General Eisenhower's strategy turned the tables on his enemy when the First Army broke out of the Remagen area to the south and east, instead of to the north and west. Linking up with Gen. George S. Patton's Third Army near Frankfurt on Main, Gen. Courtney H. Hodges' First Army then struck swiftly north to join hands with the American Ninth. With relative ease the American Seventh and French First armies had effected their own erossings of the Rhine barrier. At the northern end of the battle line the Second British and First Canadian armies breached the river defenses against comparatively heavy opposition. Spearheaded by armor and closely supported by tactical air elements, the separate Allied armies drove co-ordinated attacks into the deep rear areas of the defending Germans.

The Elbe was reached on April 17, and there the advance stopped except for the establishment of bridgeheads on the east bank as threats to Berlin. Tactical and political considerations argued for avoiding a repetition of the situation which had developed in Poland in 1939, when columns of Russians and Germans (then allies) had become badly mixed as they drove in from opposite directions. To the south and southeast, however, the drive continued into Czechoslovakia and southern Germany.

Allied forces in Italy, launching their final offensive on April 10 brought their hard two-year campaign to its end three weeks later, when Gen. Mark Clark announced that the German Army had ceased to exist as a military force. His drive continued, joining hands through the Brenner Pass with General Eisenhower's forces and turning east into Austria. An unexpected difficulty arose when it was discovered that Marshal Tito's Yugoslav Partisans, in violation of prior Big Three agreements, had overrun Istria and part of Carinthia. Judicious pressure compelled Tito's partial withdrawal, and joint occupation of Trieste provided a *modus vivendi*, leaving to high diplomacy the question of ultimate territorial settlements. By the end of April, the surrender of one broken fragment of the German Army after another had become the order of the day. The official end of military hostilities came with Col. Gen. Alfred Jodl's unconditional surrender at 8:41 P.M., U.S. Eastern wartime, May 6, 1945 (2:45 A.M. European time May 7) to the military representatives of the American, British and Russian governments. Do-or-die German elements, however, continued to resist until several days later in Austria and Czechoslovakia. At the close General Eisenhower had a total of 92 divisions in action, 61 of them American.

Pacific Theater.—January of 1945 found General MacArthur's forces in firm control of Leyte, the first of the Philippine group to be invaded in the counteroffensive which began at Guadalcanal in August 1942. Nevertheless, the "minor mopping-up operations," as termed in the press, accounted for more than 40,000 Japanese dead after the campaign had been officially declared terminated on Christmas Day of 1943. Parallel operations by American forces under the direction of Admiral Nimitz had at the same time secured firm possession of the key islands of the Marianas: Guam, Saipan and Tinian. Japan's second line of defense, in short, had been definitely broken. And, if Japan's official spokesmen were to be believed, the fate of their empire hung on the ability of the Japanese to drive MacArthur out of the Philippines.

At that stage Japan still retained several major advantages. Her ground forces were many times stronger than the totals mustered by her opponents in the theater of operations. Her lines of communication were shortened by each Allied advance while those of the Allies were being correspondingly lengthened. Signs of war weariness were growing in the homelands of the Allies. And there was always the possibility of disagreement among them, particularly if heavy casualties could be inflicted by Japan. Lastly, the fanatical attitude of the Japanese soldier in the discharge of his duty remained relatively unimpaired. The other side of Japan's picture showed a technical inferiority which grew more evident with each battle, a costly overall strategy which called for full-scale defense of the vast dotted perimeter of the empire's defense line, and the surrender to the Allies of the initiative—a handicap which insured Allied superiority at every point of attack. And China, split in two by Japan's 1944 drive which had at last given Japan an unbroken line of land communications from Korea to Malaysia, was showing increased powers of resistance as the flow of American munitions and supplies was steadily stepped up. Late in January 1945, the Stilwell (formerly Burma) Road was reopened to permit the passage of the first convoy to China in nearly three years.

A major American blow for the freeing of the Philippines was struck on Luzon when the American Sixth Army landed in the Lingayen Gulf area on Jan. 9, 1945. Only in Manila was serious resistance encountered. Three weeks of the hardest fighting against typical last-ditch defense reduced the city to ruins. A pincer move against the remnants of Marshal Yamashita's forces after a paratroop landing at Aparri in late July by the 11th Airborne Division gave MacArthur control of northern Luzon. Meanwhile other American units carried their drives through southern Luzon, the important island of Mindanao, and the rest of the Philippine group. The effort to hold the Philippines cost the Japanese some 450,000 casualties. Their dead alone numbered nearly ten times as high as the total of all American casualties in the campaign. Simultaneous air and naval sweeps against Japanese-held bases in China and to the south, including the intervening waters, closed the vast area to enemy shipping. It remained now to secure bases near enough to the Japanese homeland to permit round-the-clock air attacks on Japan's industries, commerce, and communications—the core of her resistance.

The capture of Iwo Jima by the 5th Marine Amphibious Corps in the Volcano Islands during March-April, and of Okinawa in the southern Ryukyus in June cracked the last of Japan's outer defense lines. The one-month campaign for Iwo and the 82 days' struggle on Okinawa produced the hardest fighting and the heaviest losses of the war. Clearly Japan staked everything she could use on the retention of these vital areas. A fleet sortie on April 7, headed by the 45,000-ton battleship *Yamato*, cost her that ship, two light cruisers, three destroyers and 391 planes. It was the dying effort of the once proud fleet that had humbled the United States at Pearl Harbor. There were to be no more naval battles. Instead the carrier planes of Admiral William F. Halsey's Third Fleet, supported by land-based planes, systematically destroyed at

their bases in July nearly all that remained of the Japanese fleet. Nearly 1,500 vessels, naval and commercial, were sunk or badly damaged in that period. When the veil of secrecy was finally lifted, it was discovered that submarine action had not only been a major factor in Japan's ship losses, but, in combination with air raids, had all but severed Japan's contact with the Asiatic mainland.

Through the summer months, down to Japan's surrender, American B-29's based in the Marianas struck almost daily at Japan's great cities in a crescendo of power which finally brought the total daily bombload to a figure higher than that reached in the bombing of Germany. The costly Iwo campaign was now paying a return in saving hundreds of Superfortresses whose crippled condition or lack of fuel would have made it impossible for them to return to their home bases. And from Iwo long-range fighters were giving air cover to our bombers over Japan, as well as making strikes against the enemy's planes and air installations. Okinawa, too, was paying a rising return. Many of the more than 20 available air-base sites had been sufficiently developed by July to permit incessant raids against the enemy's home islands and her shipping in the Sea of Japan, the last link to her huge Asiatic Empire. By August it was evident that Japan's air force, like her fleet, was no longer an effective tool of defense.

Those last months of desperate fighting, however, took a heavy toll of America's attackers. On Iwo our casualties approximated 20,000, on Okinawa our land forces lost more than 45,000 men, including their commander, Lieut. Gen. Simon Bolivar Buckner, mortally wounded while observing the progress of the final assault, June 18. The most serious losses, however, were taken by the navy, chiefly as the result of almost constant attacks by Japanese suicide fliers, the Kamikaze Corps. Japan, in fact, had confidently counted on holding Okinawa by employing the combined tactics of stiff resistance on the ground and the imposition of naval losses so serious as to force our abandonment of the campaign. No major unit was lost but at least 4 battleships, 5 fleet carriers, and 3 cruisers were damaged in various degrees. Some 20 smaller types—escort carriers, destroyers, minesweepers and ammunition ships were sunk, in addition to numerous LST's and smaller craft. No period of American naval history has shown comparable losses.

For the final drive the United States proceeded to assemble the greatest concentration of balanced military power ever mobilized by a single nation. Plans for the Ground, Air and Service Forces of the army called for an aggregate of more than 7,000,000 men, marking a reduction of more than a million from the total mobilized for the two-front war. By contrast, our naval strength continued to mount as the shipyards completed new vessels. British Empire forces in the Far East also rose rapidly as units and replacements were shifted from the European theater. As events proved, Soviet Russia's Far Eastern forces were to play their part, with the mission of engaging and destroying the veteran Japanese Kwantung Army, long dominant in Manchuria and Korea. Lastly, China's reviving military power was becoming adequate to engage fully the enemy garrison on her soil while the projected main blow was launched at the Japanese homeland.

The softening process of unremitting air and naval assaults against Japan's home defenses went more rapidly than the most optimistic had believed. Even so, actual invasion was expected to be costly if Japanese fanaticism continued to the end. At that juncture, American science sprung its greatest secret on an incredulous public—the atomic bomb. A test of this most lethal weapon of all time showed that a single bomb released a destructive power estimated as equivalent to that of 20,000 tons of TNT. Two atomic bombs, the first dropped on Hiroshima, August 6, the second on Nagasaki three days later, were sufficient to change three months of Japanese dilly-dallying with peace proposals into a precipitate offer of surrender. Backing up the destruction of Hiroshima and Nagasaki came President Truman's announcement that Japan's unconditional surrender alone would prevent further attacks by the same means. A bomb of another type was Soviet Russia's declaration of war against Japan, coincident with the bombing of Nagasaki. For Japan it was the end of the trail. Seventy years of empire-building, reaching its climax in 1942, when many believed that she had established herself impregnably as master of an area embracing most of East Asia and the islands of the south and southwest Pacific, came to end when the Japanese government on August 14 accepted the terms of surrender laid down by the Allied Powers in their Potsdam Declaration of July 26. The single modification granted by the victors was the retention of sovereignty by Emperor Hirohito, subject however to the orders of the Allied supreme commander. General MacArthur was designated to fill that post.

The actual signing of the surrender terms was delayed until September 2 to ensure the completion of all necessary preparations for a full-scale military occupation. Seaborne and airborne landings were made in the area surrounding Tokyo harbor by enough troops to ensure retention of a proper base if the Japanese balked at the last minute. Both the initial invasions and the progressive occupation of key centers which followed, proceeded without untoward incidents. The concession granted Japan in her retention of the emperor, subject to General MacArthur's orders, proved its wisdom. In Japan proper, the native populace accepted its lot with passive docility. And in China, Southeast Asia, and the Pacific islands, garrison forces aggregating several millions went through the process of piecemeal surrender. By September 5, the situation appeared so favorable that General MacArthur requested the War Department to transfer to the Pacific only three of the six divisions redeployed from Europe for duty in the Far East. Low-point men in the United States, however, were counted on to replace within the next year, the veterans of MacArthur's forces.

War Production.—The battle of the assembly line had been won months before the dawn of 1945. Shortages still continued to appear, however, not only in the Pacific theater with its secondary priority but also in Europe. The acid test of sufficiency was at the firing point rather than in the statistical tables of totals in a pipeline which reached back to the manufacturer's shipping department. The over-optimism of 1944 which had precipitated a too early shift to reconversion for production of civilian goods ended abruptly when the war mobilization director in January stopped the conversion processes until after the cessation of hostilities in Europe. His directive had little effect on one major contributing cause to the shortages, namely labor turnover. As the Navy Department disclosed in

March, the constant loss of skilled labor in shipyards had raised the construction time on destroyers by more than 50 per cent. Even worse delays were encountered in the building of aircraft carriers and six "desperately needed" hospital ships.

Germany's surrender brought abrupt improvement in the overall situation. The change operated in two directions: the filling of a vastly increased "pipeline" to the Far East, now in first priority; and the cutbacks and terminations of contracts for equipment and supplies not deemed necessary for the Pacific war. Calculations for Pacific supply were based on an estimate of the war's continuing for not less than a year, and possibly for eighteen months. The shift in emphasis resulted in the cutting of 44,300 planes of various types from the original 1945 program. At the same time increased output of B-29 Superfortresses and P-80 jet-propelled fighters was called for. Tanks and most artillery types were found to exist in adequate quantity. On the other hand, the recoil-less 57-mm. and 75-mm. guns, the most startling ordnance product of modern years, came in for huge orders. Battle tested in Germany and Okinawa, it gave the infantryman at long last the firepower of light artillery.

Expanded output in such special items was no real offset to the wave of curtailment which, by September, represented nearly 40 billion dollars in war production cuts. More were to come as Congress called for a restudy of prior authorizations and the president took the initiative in certain specific contract terminations. At the same time steps were being taken to provide for the orderly disposal of surpluses of war goods, estimated at various amounts up to 100 billion dollars. Some of it was wanted for urgent relief work in the devastated areas of the Old World; much more had no peacetime value except as scrap, but a vast amount was due for resale to the public. Foreign demand for a share of the goods was affected by President Truman's announcement of the termination of shipments abroad under the provisions of the Lend-Lease Act. Under that law goods and services to the value of more than 42 billion dollars had been furnished our Allies, while we were receiving in return some $5,600,000,000 worth. Subsequent exports, other than those made under UNRRA relief program, are to be made on a business basis.

The event in war production which, in the eyes of many military and civilian authorities, holds the most serious portents for the future is science's success in splitting the atom and the utilization of forces thus generated to the destructive processes of war. Three years of intensive research and production at a cost of more than 2 billion dollars went into the two bombs dropped on Hiroshima and Nagasaki in the closing hours of the war. It was but one of many items covered by the studies of the Office of Scientific Research and Development, the agency which finally gave the United States unquestioned primacy in research for war.

Military Government.—The first breach made by United States Ground Forces across the German frontier in the fall of 1944 brought them face to face with a grimmer experience in the military control of enemy territory than anything previously recorded in our history. German civilians as well as soldiery were so completely Nazified that nothing short of the sternest measures of justice could cope with ingrained hostility and gain the minimum of cooperation necessary to make bare existence possible for the native inhabitants. German plans and preparations were intended to turn every civilian into an underground agent determined to sabotage Allied military operations at whatever cost to themselves. For those Germans who were ready to co-operate in any degree with their conquerors the punishment was to be assassination. The "werewolves" murder of the mayor of Aachen, first city of importance captured by American arms, was an intended warning for all other potential co-operators. A collateral difficulty was the fact that few Germans except those whose loyalty to the Hitler regime was beyond doubt had had any experience as public servants. As a result the military government agencies of the Allies were left to make the difficult choice between putting inept anti-Nazis into office or of leaving at least some of the Nazi functionaries in their jobs. Both techniques called for close and stern control. It was accompanied by stringent orders forbidding fraternization between our army personnel and the natives.

Such early resistance declined rapidly as the Allied armies swept on to final victory. There followed a period of complete apathy, psychological shell shock, on the part of the German populace. Gen. Dwight D. Eisenhower, supreme commander, shook the Germans out of that attitude when he warned them that starvation and extreme hardships in the coming winter could be staved off only through the Germans' own efforts to provide for themselves. Basic agriculture and the construction of shelters thereafter got under way.

A few days prior to the final German surrender, General Eisenhower announced the primary objectives of the Allied Military Government, in substance as follows:

(1) Imposition of the will of the Allies upon occupied Germany.
(2) Restoration and maintenance of law and order.
(3) Care, control and restoration of displaced persons of the United Nations and minimum care necessary to effect control of the enemy refugees and displaced persons.
(4) Protection of United Nations property, control of certain properties, and conservation of German foreign exchange assets.
(5) Apprehension of war criminals.
(6) Elimination of nazism, fascism and German militarism.
(7) Preservation and establishment of suitable civil administration to the extent required to accomplish the foregoing.

On May 11, United States Secretary of War Henry L. Stimson disclosed the organizational plans for the military government, as agreed in the Yalta declaration. It calls for a Four-Power Control Council seated in Berlin, with General Eisenhower (later elected chairman of the council) representing the United States and Lieut. Gen. Lucius Clay serving as his deputy. Twelve major divisions make up the control machinery of the United States' section:

Three Military Divisions—Army (Ground), Naval, and Air Transport Division
Economic Division
Political Division
Finance Division

Reparations, Delivery, and Restitution Division
Legal Division
Manpower Division
International Affairs and Communications Division
Prisoners of War and Displaced Persons Division
An overall Intelligence Section, answerable to General Clay, supervises the entire denazification plan. Also under General Clay are Public Information and Public Relations sections.

One of the most serious complications which promised to drag on into the fall months was the restoration of more than seven million "displaced persons" to their native homes. These were, for the most part, foreign laborers of both sexes and all ages impressed by Germany in occupied territories for war production. The extreme cases were those of the hundreds of thousands of men and women found in concentration camps, where Germany's organized mass murder of the sick, weak, and "undesirables" had been responsible for a death toll running into millions. And the highways were for weeks filled with mobs and armies of refugees who were making shift somehow to get back to their homelands. Looting and murder of the Germans by such human derelicts was only to be expected. The herculean task of assembling all that human flotsam and jetsam into camps where they could be fed, housed, deloused, and hospitalized where necessary, was a first priority task of the army. By mid-July more than half of the unfortunates had been restored to their native lands under agreements made with the countries concerned.

Progress toward the trial and punishment of Germany's thousands of war criminals was definitely slow. Within the United States zone of occupation, however, military commissions were relatively prompt in hunting down and bringing to justice the Germans who were charged with such crimes as the murder of Air Force fliers whose planes had been shot down. Execution by hanging was the standard penalty in cases where guilt was clearly established. War criminals of high rank like senior government and Nazi Party officials, commanders of concentration and prison camps, and Gestapo officers waited for months behind barbed wire while negotiations as to uniform policy in such matters went on at the top diplomatic level. The policy of the United States in such matters was early made clear by Supreme Court Justice Robert H. Jackson, head of the American Special Commission for the trial of war criminals of high rank. In Justice Jackson's eyes the wholesale and extreme violations of the rules of warfare and of international law stand as a crime committed by all Nazidom, automatically implicating all members of the Nazi Party. Under such a ruling, proof of membership in the Nazi organization would constitute *prima facie* evidence of guilt. Moreover, Justice Jackson insisted that unilateral action would be taken by the United States to bring to book the accused Germans held in American stockades if delays continued in the determination of overall Allied policies in such matters. His stand eventually produced a general acceptance of the basis on which the accused will be brought to trial, and likewise accelerated preparations to the point where it could be announced that the first batch of outstanding war criminals would be brought to book before the Allied War Crimes Commission at Nürnberg about November 1. A considerable number of the wanted persons, however, still eluded detection and seizure.

Preparations to a similar end were begun in the Pacific theater long before the time of Japan's collapse could be predicted. There the major task falls to the United States and its occupation forces in the Japanese homeland. The extreme brutality of the Japanese in the treatment of prisoners, whether military or civilian, and the savagery with which they conducted the war from first to last have created a staggering problem for our military government personnel. It is not simplified by the fact that such Japanese techniques belong to their code of warfare. A further complication is the impossibility of laying hands on more than a fraction of the many thousands of individuals guilty of such extreme violations of the rules of warfare. And if the violators of the code of civilized nations could be apprehended, tried, and convicted, the resultant wave of executions might well aggravate an already difficult situation. What is really on trial in Japan is an atavistic racial culture rather than its individual adherents.

Postwar Military Policy.—Both the sudden swiftness of Japan's collapse, coming approximately a year ahead of the time anticipated by conservative observers, and the nebulous state of the Allied Nations' plans for world reorganization prevented the early formulation of postwar military policy for the United States. In fact, anything like finality in that matter may well be some years away. The more important basic factors on which final decisions rest are the following: (1) the events of the past four years and the fully mobilized military strength of the United States have automatically given her primacy among the Great Powers; (2) for the present at least a vast majority of the electorate endorses the principle of maintaining in being enough armed force to ensure stabilization of a peace based on the theory of world security rather than mere national defense; (3) the traditional escapist philosophy of many Americans after the termination of an emergency, causing them to substitute the "let George do it," principle for their own contribution to national security; (4) the utter devastation of vast areas in the Old World raises doubts as to whether adequate relief can be provided until the development of domestic resources in the war-torn areas makes it possible to substitute self-dependence for outside relief; (5) the absence of the definitive treaties which must lay the lines of final settlements for the defeated nations and likewise for the states overrun by the major combatants during the war; (6) the actual effectiveness of UNO as a stabilizer of world affairs; (7) the, as yet, unpredictable influence of the atomic bomb on future military strategy and tactics.

Some policy problems, stemming directly from the liquidation of the war, were too pressing to wait. In Germany, Supreme Headquarters Allied Expeditionary Force (SHAEF) went out of existence on July 14 by General Eisenhower's order. At the same time the new Headquarters United States Forces European Theater (USFET) was opened under his direction at Frankfurt on Main. A separate American force took over the task of occupying its allotted zone in Austria, while a special unit was placed in control of a section of Vienna, the Austrian capital. Throughout their occupation zones, the American forces expedited the return of millions of displaced persons to their homeland. Some

hundreds of thousands, mostly Poles and Russians who were determined not to be shipped back, remained to be cared for. The total strength of the force retained for occupation duty was tentatively set at about 400,000.

One of the most onerous duties faced was the execution of the Big Three mandate to destroy Germany's war potential. That goal, according to Lieut. Gen. Lucius D. Clay could not be achieved " . . . without inflicting some punishment on the German people . . . and lowering the German standard of living." Germany's industrial reorientation from heavy to light industry was admitted to be difficult, " . . . but not impossible."

In the Pacific the apparent wholeheartedness of Japan's acceptance of defeat was such that General MacArthur's plans, announced in September, indicated a garrison of no more than 400,000 American troops for the Japanese homeland and Korea. Supporting troops and reserves in American bases in the Philippines were expected to raise the total Pacific forces to a million. Plans for the complete liquidation of the Japanese war machine, including the supporting industrial establishment, awaited detailed announcement. On one score there were no doubts: the navy declared its desire to secure full development of a strong chain of major bases extending from the Aleutians down through the Ryukyus to the Southwest Pacific, supported in the rear by other bases in the Central Pacific, and thence back to the Panama Canal. The list: Kodiak, at the base of the Alaskan Peninsula; Adak, in the Aleutians; Hawaii; Balboa, C.Z.; Guam, Tinian, and Saipan in the Marianas, considered as one base; Iwo, in the Volcanoes; Okinawa, in the Ryukyus; Manus, in the Admiralties; the Philippines. The navy's recommendations for Atlantic bases added Argentia, Newfoundland; and Bermuda to four prewar American bases: San Juan, P.R.; Roosevelt Roads, P.R.; Guantánamo, Cuba; and Coco Solo, C.Z. Supplemented by secondary supply stations and anchorages at other points, the above fifteen major bases were deemed ample to provide a degree of natural security never before attained.

The strength and composition of the permanent postwar establishment remains a moot point. No progress can be made toward a definitive setup until after Congress has determined whether our future armed forces will or will not be backed by a potential reserve, the product of a system of universal military training. Independent public polls over recent months indicate that seven of every ten citizens favor such a training system. Polls conducted in the armed forces have produced a higher percentage, nearing 100 per cent in units which can boast extended combat experience. On the other hand, powerful and closely knit minorities such as organized labor, the churches, and a majority of educators have brought heavy pressure to bear on Congress in opposition to the project. One element in the situation which may finally determine the issue is the question as to whether voluntary recruitment can bring to the colors anything like the numbers needed to maintain even skeleton forces in occupied areas abroad, garrisons for our permanent overseas and home stations, and the minimum needed for overhead. A test of the practicability of such a solution was indicated for the fall months of 1945 as the War and Navy departments prepared to launch their recruiting campaigns.

Two sharp departures from prewar policy look to a broadening of the armed forces' functions. On the one hand, the setting up of a State, War and Navy Co-ordinating Committee in the State Department augurs well for the kind of collaboration which was almost nonexistent at Pearl Harbor time, if one can judge fairly from the report rendered by the army's Board of Inquiry on that disaster. No surrender of State Department functions is contemplated in that move. On the other hand, successful collaboration at that level should preclude any future failure to disregard the power factors involved in matters of foreign policy. The second move, launched in July, seeks to establish by law a Research Board for National Security. In effect it would continue on a permanent basis the wartime function carried out by the Office of Scientific Research and Development. Actually such studies as produced the atomic bomb would represent but one aspect of the board's work, its activities covering in addition all scientific problems of public interest, notably those of health and medical care, and the basic sciences.

A first question remaining to be answered by the strategists as well as the scientists is the net effect of the atomic power on the whole range of strategy and tactics, whether on land, sea, or in the air. Snap judgment brought prompt statements from various quarters that the world's armies, navies, and air fleets have been rendered obsolete. Official opinion, as voiced by Gen. H. H. Arnold, commander of the Army Air Forces sees future war in terms of pilotless missiles, projected with high accuracy from any spot on the earth's surface to any other spot. If so, a new premium has been placed on the sudden, unannounced attack. The navy, on the other hand, indicates that the interception and destruction or neutralization of such missiles can be effectively carried out by an alert defender.

Whatever the facts, it is clear that the composition, training, equipment and utilization of tomorrow's armed forces must take into full account the latest gifts of science to warfare, as well as those that must surely follow. This time, no mere evolutionary changes can meet the situation. The empty waste which marks the site of Hiroshima silently predicts revolution in the methods of war and the military policies which fashion and direct armed power.

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WAR PRODUCTION, United States. Even before the victory in Europe (V-E Day, May 8, 1945), a series of cutbacks in military requirements heralded the inevitable ending of a war that had witnessed, in the United States, the greatest armament production in the history of any country.

This production provided against the enemy an air fleet of 297,000 military airplanes, including 97,000 bombers, of total airframe weight of 2,500,000,000 pounds for all military airplanes and special purpose aircraft. It supplied an armada of 71,060 warships, exceeding the combined navies of all other countries; furnished the combined fire power of 315,000 pieces of field artillery and mortars; produced 5,400 cargo ships and transports, 86,388 tanks, and 16,018 tank chassis for self-propelled guns; 12,600,000 rifles and carbines; more than 4,000,000 tons of artillery ammunition, nearly 6,000,000 tons

of aircraft bombs, and 41,400,000,000 rounds of small arms ammunition.

Radar, hardly out of the laboratory in 1941, accounted for $3,700,000,000 of the total war production, and the atomic bomb, which proved finally decisive of the war and involved incalculable consequences in the future, another $2,000,000,000. Total munitions production during the five years of defense preparation and war—from July 1, 1940, through July 31, 1945—amounted to $186,000,000,000, at standard munitions costs, in a picture not distorted by price level changes.

Gross national product during wartime expansion (1939–44) rose by more than one half after allowance for price level changes; output of raw materials by 60 per cent, while volume of manufacturing nearly tripled. Without adjusting for price level changes, national output increased from less than $90,000,000,000 a year when Hitler's armies marched into Poland to an annual rate of $207,000,000,000 just before the German collapse.

After the most urgent need for facilities had been met in new war plants, military camps, and housing for defense workers, with construction rising in 1942 to double the 1939 level, the problems shifted to manpower and production of war materials.

Manpower drawn into the armed forces was replaced in the industries through calls upon housewives of the nation, youth of school age, elderly men, and the physically handicapped. Thus the labor force increased in five years from 54,100,000 to 64,000,000, or by almost 20 per cent. Out of these 10,000,000 new workers, plus all but a few hundred thousand of the 9,000,000 unemployed of 1939, came the manpower and womanpower to replace the 10,000,000 added to the military services and to add 7,500,000 to civilian employment. Most of this addition was for staffing manufacturing plants, while agriculture, and later construction, actually lost workers.

Between 1939 and 1944, the average work week in manufacturing increased from 37.7 to 45.2 hours, or by 20 per cent; in construction, from 32.4 to 39.5 hours; and in mining, from 32.3 to 43.9 hours. In this interval productivity per manhour climbed sharply.

Consumer expenditures in 1944, after adjustment for price level changes were still slightly higher than in 1939. This indicated that the munitions production that defeated the Axis all came out of additions to the country's normal output. Yet this increment was itself greater than the total munitions output of the Axis powers, and greater than the combined munitions output of the nation's allies.

Industrial production had more than doubled, rising at the rate of more than 15 per cent a year—more rapid than the rise of 12 per cent a year from the deep depression of the 1930's, previously the fastest on record. That record had represented merely recovery of lost ground, not, as during the war, a pushing forward to new highs.

Great as the American war effort was, at no time during the struggle did it absorb more than two fifths of the total national output. Industry superposed war production on the normal production job instead of substituting guns for butter.

During the industrial expansion there were drastic readjustments in the economy. Factory employment of workers increased from 10,151,000 in 1939 to 16,558,000 in 1944, while the factory labor force rose from 19 per cent to 26 per cent of the total. The group of manufacturing industries provided work for almost a third of all civilians gainfully employed in 1944, as against less than one fourth in 1939. All other components of the labor force shrank in percentages of the total, although an absolute increase was recorded in finance, trade, services, and government.

Female factory workers nearly doubled in number between 1939 and 1944, while male workers increased by only 35 per cent. From 1 or 2 per cent in 1939, factory workers engaged on war work increased to about 57 per cent of the total, while factory workers producing for civilians declined by about 30 per cent.

Only 2 per cent of total national output was devoted to war in 1939, and 40 per cent in 1944. In 1939, about 70 per cent of production went to satisfy immediate civilian wants, and 28 per cent to civilian government expenditures, capital formation, and exports. But in 1944 the civilian share, although just as large in physical quantity, represented only half the total national output.

During this interval the increase in "soft goods" and services more than compensated for the reduction in durable goods, while the supply of durable goods on hand at the beginning, in large part outlasted the war.

One other far-reaching change occurred in the nation's economy: to an extent unprecedented in previous wars the economy was guided by Washington. Every industrial plant built after April 1942, was by government authorization, and two out of three dollars of the cost was provided by the Treasury. Hardly a ton of steel or copper or aluminum could be fabricated without government approval. Over a large area of production the government decided what should be produced, who should produce it, and to whom it could be sold. Prices and wages were controlled by government. Government helped guide the movement of labor from plant to plant, from industry to industry, and from region to region. Yet the government control never reached, in degree, the regimentation endured by America's chief allies or by the enemy. The nation co-operated wholeheartedly to make the system work.

In the effort to build up war production, three basic problems had to be solved. At first the acute shortage was in facilities for finished munitions products—plant, equipment, and machine tools. In the second phase, the production of raw materials had to be expanded and timed to flow evenly through the new plants. Finally, as selective service took its toll of workers, manpower to run the new machines became the main problem.

Some $25,000,000,000 was added to new plant and equipment, including conversion of peacetime industry to war. The big expansions were in synthetic rubber and aviation gasoline plants, explosives, guns and ammunition, aircraft, and shipbuilding. To these were added expanded facilities for aluminum, magnesium, certain plastics and plasticizers, combat tanks, and many others. The peak in raw materials was reached early in 1944.

Late in 1944, men were desperately needed in textile mills and lumber camps, coal mines and steel mills; in tire plants, lead mines and smelters, ship repair yards, rocket and shell-loading plants, foundries, many chemical plants,

and most of the aircraft plants. After the Battle of the Bulge in the Ardennes, and during consequent military withdrawals of previously deferred industrial workers, there was hardly an industry that was not short of manpower. The German collapse staved off what might have become a desperate manpower shortage.

In 1942, munitions production and war construction amounted to $44,000,000,000; in 1943, to $63,000,000,000; and in 1944, to $59,000,000,000. In March 1945, after the Battle of the Bulge, the decline in total munitions output, which had begun at the end of 1943, was strongly reversed. But by April 1945, the German collapse became imminent. Military cutbacks gained momentum as V-E Day approached and passed, and with the unexpectedly early Japanese surrender, the war schedules faded away. Estimates then showed that by mid-1946, military procurement would be below the rate at the time of Pearl Harbor, before American entrance into the war.

Reconversion.—V-J Day found the War Production Board prepared with a carefully drawnup program to meet the problems of reconversion and to speed the nation's transition from war to peace. In fact, part of the job was already under way. Early and continued planning for reconversion of industry began with a study undertaken by the WPB in April 1943, and was followed by an almost continuous series of additional studies and reports. The Committee on Demobilization of Controls after V-E Day, established to develop a program for reconversion controls, was followed in February 1945, by a new Committee on Period One, set up to review this program and keep it up to date. This committee continued to function up to V-J Day. The Controlled Materials Plan, which was open-ended after V-E Day, went out of existence at the end of September 1945. Orders and regulations were revoked until soon there was only a handful, with these limited purposes: (1) to prevent speculative buying and hoarding of materials and products which would result in inequitable distribution and thus handicap reconversion; (2) to restrict consumption of items which were still in tight supply, such as tin, natural rubber, hard cordage fibers, lead, certain textiles, and a few others, until normal supplies were again available; (3) to assure the meeting of remaining military needs, through use of the MM preference rating; (4) to break reconversion bottlenecks by expediting and by limited priority assistance to nonmilitary production through use of the nonextendable CC, or civilian, preference rating; (5) to maintain temporarily certain powers which might be needed to assure equitable treatment for small business, for veterans, and for meeting export commitments, or to protect continuing controls of other government agencies.

J. A. KRUG,
Former Chairman, War Production Board.

WAR PRODUCTION BOARD (WPB). Having guided armament production to its highest 1945 level in March, the War Production Board prepared actively for reconversion of industry to peacetime production following victory in Europe, May 8. By September 2 (V-J Day) the board was steadily dissolving its committees and personnel as rapidly as the residue of the war production program and reconversion permitted.

With the ending of lend-lease, several international boards functioning under William L. Batt, vice chairman (International Supply) were still in being. Early in 1945 the president of the United States and the prime ministers of Great Britain and Canada announced their decision to maintain the Combined Production and Resources Board, Combined Raw Materials Board, and Combined Food Board until V-J Day. It was further announced, August 29, that these three boards would continue, for the time being, to operate on the existing basis in order to ensure that there be no break in combined machinery, which was handling critical supply questions of immediate importance. A review of the work of each board was then being arranged with the object of determining the need for its further operation.

Following V-J Day, the War Production Drive Division, which had stimulated productivity by setting up labor-management committees, was abolished along with the Conservation and Salvage Division and the Management Consultant Division.

After September 30, when the major war production controls had been revoked, remaining members and staff of the WPB carried on into the period of reconversion, with maintenance of such arms of the board as were needed to assure supplies to the occupation forces; to break reconversion bottlenecks; to protect small business and veterans engaging in business; to shepherd materials still in tight supply until normal supplies were forthcoming, and to safeguard continuing controls of kindred government agencies.

At the end of August, 10,800 salaried employees remained on the payroll of the board—6,200 in Washington and 4,600 in the field offices. By November 3, when the War Production Board was terminated by order of the president, and the Civilian Production Board took over its remaining functions for reconversion of the war industries to civilian production, the force in Washington had been reduced to 2,222, and in the field offices to 1,387. By Jan. 1, 1946, the field force had been eliminated entirely.

J. A. KRUG,
Former Chairman, War Production Board.

WAR RELIEF CONTROL BOARD. This board was established by executive order, July 25, 1942, to further, for the duration of the war and six months thereafter, the productive use of voluntary contributions for the emergent relief of war sufferers in foreign countries, or for the welfare of the personnel of the armed forces and the merchant marine of the United States.

The solicitation and collection of public contributions are controlled by the registration or licensing of agencies authorized to administer foreign war relief and national military welfare programs which are approved by the board. The federation, known as the National War Fund, was organized in 1943 with the co-operation of the War Relief Control Board. The programs of the member agencies are co-ordinated, after budget hearings, to permit one annual country-wide appeal for funds to support war charities other than those of the American Red Cross.

Registered organizations numbered 115, of which 90 were for foreign relief activities. During the year June 1944 through June 1945 there was contributed to registered agencies for foreign war relief a total of $90,423,119.57 in cash, and $182,798,080.62 in kind. Of the cash received, $79,197,431.27 was transmitted abroad; goods

in kind shipped abroad totaled in value $145,677,752.39. The chief beneficiaries were the people in liberated areas, including those in exile. These totals, it should be understood, do not include the value of shipments of food, medicines, and clothing provided through lend-lease, the American Red Cross, and UNRRA.

In addition to the 90 agencies registered with the board for foreign war relief, there were 25 registered agencies engaged in domestic welfare on behalf of the armed forces and the merchant marine. Their total contributions are not available, but approximately $66,000,000 were included in the National War Fund budgets of 1945 for these services.

JAMES BRUNOT,
Executive Director, WRCB.

WAR TRAINING PROGRAMS. See EDUCATION, REVIEW OF.

WARTIME NURSING. See NURSING, WARTIME.

WASHINGTON. Pacific state, United States; admitted to the Union Nov. 11, 1889. Population (1940): rural, 814,222; urban, 921,969; total, 1,736,191. Land area, 66,977 square miles, divided into 39 counties. Chief cities, with 1940 populations: Seattle, 368,302; Spokane, 122,001; Tacoma, 109,408; Everett, 30,224; Bellingham, 29,314; Yakima, 27,221; Olympia, the capital, 13,254.

Chief State Officers, 1945.—Governor, Mons C. Wallgren; lieutenant governor, Victor A. Meyers; secretary of state, Belle Reeves; treasurer, Russell H. Fluent; attorney general, Smith Troy.

Judiciary.—Chief justice of the Washington Supreme Court, Walter B. Beals; associate justices, Bruce Blake, Thomas E. Grady, C. G. Jeffers, Joseph A. Mallery, William J. Millard, John S. Robinson, George B. Simpson, William J. Steinert.

Legislature.—The state legislature (Senate, 46 members; House of Representatives, 99 members) convenes biennially in odd years on the second Monday in January.

Education.—Public elementary school pupils (1944), 198,493; teachers, 7,479; average yearly salary of elementary school teachers, $2,017 (men); $1,897 (women). Public junior high school students (1944), 86,367; teachers, 1,251; average yearly salary of junior high school teachers, $2,212 (men); $2,141 (women). Public senior high school students (1944), 61,606; teachers, 3,153; average yearly salary of senior high school teachers, $2,314 (men); $2,060 (women). Education in Washington is compulsory for all children between the ages of 8 and 16, inclusive. Total state appropriation for education (biennium 1945–47), $65,000,000. State superintendent of public instruction, Pearl A. Wanamaker.

Finances.—The following statement of Washington's finances for the biennium 1942–44 was supplied by the state treasurer:

Balance in treasury, beginning of biennium 1942–44	$ 38,403,524.89
Receipts, 1942–44	396,249,481.06
Total	$434,653,005.95
Disbursements, 1942–44	350,941,438.73
Balance, end of biennium 1942–44	$ 83,711,567.22

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	1,206	1,189	1,305
Oats (1,000 bu.)	7,913	7,728	7,200
Wheat (1,000 bu.)	49,000	64,030	68,427
Barley (1,000 bu.)	4,881	8,550	7,175
Rye (1,000 bu.)	243	240	270
Peas, dry field (1,000 bags)	2,082	4,699	3,000
Hay:			
Alfalfa (1,000 tons)	694	716	842
Clover and timothy (1,000 tons)	405	414	445
Tame (1,000 tons)	1,741	1,916	2,073
Potatoes (1,000 bu.)	8,713	10,340	12,255
Cherries (tons)	24,850	29,100	34,500
Apples (1,000 bu.)	27,446	31,100	26,180
Peaches (1,000 bu.)	1,742	2,604	2,465
Pears (1,000 bu.)	6,260	8,665	7,982
Grapes (tons)	9,480	17,300	18,400

WATSON, Billy, American singer and comedian: b. New York, N.Y., 1867?; d. Asbury Park, N.J., Jan. 14, 1945. As owner and star of *Billy Watson's Beef Trust,* Mr. Watson made a fortune touring the burlesque circuit with an act featuring chorus girls advertised as weighing more than 190 pounds each. His other outstanding show was *Krausemeyer's Alley,* in which he played Philip Krausemeyer, a German clarinetist, and his partner, Billy Spencer, played Mike Grogan, an Irish sausagemaker.

According to an article published in *The New Yorker* some five years before his death, he was born Isaac Levie, and acquired his stage name in 1881, when he took the place of a singer, Billy Watson, who was sick. He made such a success that he adopted this name for good. Later as a Dutch comedian, he did so well in vaudeville and burlesque that by 1905 he owned a Brooklyn theater, Watson's Cozy Corner, which he later sold to Marcus Loew for $85,000. Mr. Watson retired from the stage in 1925, returning for a few months in 1937, when he and Billy Spencer revived *Krausemeyer's Alley.*

WATSON, Edwin Martin, United States Army officer, secretary and military aide to President Franklin D. Roosevelt: b. Eufaula, Ala., Dec. 10, 1883; d. Feb. 20, 1945, after a brief illness on board a United States man-of-war while returning from the Yalta conference. A close personal friend of President Roosevelt, Major General Watson became the president's military aide in 1933, and was appointed presidential secretary in 1939. He was well-known for his winning personality, tact, and ability to protect and serve the president.

WAVES. See WOMEN'S RESERVE OF THE UNITED STATES NAVAL RESERVE.

WEDEMEYER, Albert Coady, United States Army officer: b. Omaha, Nebr., July 9, 1896. In October 1944, Lieutenant General Wedemeyer replaced Gen. Joseph W. Stilwell as commanding general of United States Army Forces in China and chief of staff to Generalissimo Chiang Kai-shek, after General Stilwell's recall to Washington and the separation of the China-Burma-India theater into two theaters. His command included French Indo-China. General Wedemeyer transferred to Chungking from the Southeast Asia command where he had been Admiral Lord Louis Mountbatten's deputy chief of staff since October 1943. Member of the War Department General Staff from 1941–43, he is regarded as one of the army's ablest strategists, and accompanied Chief of Staff General of the Army George C. Marshall on many of his trips aboard to confer with Allied leaders during the war. He represented General Marshall at the New

Delhi-Chungking conferences in February 1943. General Wedemeyer is a graduate of West Point (1918); the Infantry School, Fort Benning, Georgia; and the Command and General Staff School (1936). His record was such at the command school that he was sent abroad in July 1936 for further study, and enrolled at the German General Staff School, the Kriegsakademie. During his two years there, he witnessed the development of the Nazi war machine. In January 1945 he was promoted lieutenant general (temporary), and Great Britain made him a Knight Commander of the Order of the Bath.

WERFEL, Franz V., Austrian poet, novelist, and dramatist: b. Prague, Bohemia (now Czechoslovakia), Sept. 10, 1890; d. Hollywood, Calif., Aug. 26, 1945. One of the outstanding figures in contemporary German literature, Werfel first established his reputation as one of the most gifted poets of the expressionist school, but he is probably best known in the United States for his two popular novels, *The Forty Days of Musa Dagh* (1934) and *The Song of Bernadette* (1942), and four plays that have been produced on Broadway, *The Goat Song, Jaurez and Maximilian, The Eternal Road,* and *Jacobowsky and the Colonel.*

In 1911 he published his first book of poems, *Der Weltfreund.* In 1918 he married Alma Marie Schindler, the widow of the composer, Gustav Mahler. When Hitler gained power in Germany, Werfel was expelled from the Prussian Academy of Art, and after the Nazis invaded Austria in 1938, he lived for the next two years in Paris. When France fell he managed to escape to Spain, after taking temporary refuge at Lourdes, where he was inspired to write the story of Bernadette Soubirous. Werfel arrived in the United States on Oct. 13, 1940.

Among Werfel's works which have appeared in English translation are: fiction, *Verdi* (1925), *The Man Who Conquered Death* (1927), *The Class Reunion* (1929), *The Pure in Heart* (1931), *The Pascarella Family* (1932), *Twilight of a World* (1937). *Hearken Unto the Voice* (1938), and *Embezzled Heaven* (1940); drama, *The Goat Song* (1926), *Jaurez and Maximilian* (1926), *The Eternal Road* (1936), *Paul Among the Jews* (1943), and *Jacobowsky and the Colonel* (1944); and *Between Heaven and Earth* (1944), a book of essays.

WEST INDIES. An archipelago extending between Florida and South America, from latitude 10° N. to 28° N. and from longitude 58° W. to 86° W. The total land area is about 91,300 square miles, and the population numbers nearly 15,500,000. Politically, the West Indies comprises three republics, two insular possessions of the United States, six British colonies, two French colonies, and one Netherlands colony. The Anglo-American Caribbean Commission (q.v.) co-ordinates the common activities and interests of the possessions of the United States and Great Britain. Detailed descriptions of the components of the West Indies are given in the following articles: BAHAMAS; BARBADOS; BRITISH WEST INDIES; CUBA; CURAÇAO; DOMINICAN REPUBLIC; GUADELOUPE; HAITI; JAMAICA; LEEWARD ISLANDS; MARTINIQUE; PUERTO RICO; TRINIDAD AND TOBAGO; VIRGIN ISLANDS OF THE UNITED STATES; WINDWARD ISLANDS.

WEST VIRGINIA. South Atlantic state, United States; admitted to the Union June 20, 1863. Population (1940): rural, 1,367,682; urban, 534,292; total, 1,901,974. Land area, 24,090 square miles, divided into 55 counties. Chief cities, with 1940 populations: Huntington, 78,836; Charleston, the capital, 67,914; Wheeling, 61,099; Clarksburg, 30,579; Parkersburg, 30,103; Fairmont, 23,105.

Chief State Officers, 1945.—Governor, Clarence W. Meadows; secretary of state, W. S. O'Brien; treasurer, R. E. Talbott; attorney general, Ira J. Partlow.

Judiciary.—Chief justice of the West Virginia Supreme Court of Appeals, W. T. Lovins; associate justices, Jo N. Kenna, Fred L. Fox, James B. Riley, Frank C. Haymond.

Legislature.—West Virginia's legislature (Senate, 32 members; House of Delegates, 94) convenes biennially in odd-numbered years, on the second Wednesday in January.

Education.—Public elementary schools (1944–45), 4,368; teachers, 10,059; pupils, 279,205. Public junior and senior high schools (1944–45), 408; teachers, 4,994; students, 126,366. Education in West Virginia is compulsory for all children between the ages of 7 and 16, inclusive. There are nine teacher training schools (two of them for Negroes) in the state. Total state appropriation for education (1944–45), $19,934,800. State superintendent of free schools, W. W. Trent.

Finances.—Following is a statement of West Virginia's finances for the fiscal year 1944–45, supplied by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$ 26,141,202.35
Receipts, 1944–45	197,061,879.03
Total	$223,203,081.38
Disbursements, 1944–45	193,137,123.27
Balance, beginning of fiscal year 1945–46	$ 30,065,958.11

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Average 1934–43	Production Final 1944	Preliminary 1945
Corn (1,000 bu.)	12,798	10,426	12,075
Oats (1,000 bu.)	1,694	1,430	1,625
Buckwheat (1,000 bu.)	272	185	156
Wheat (1,000 bu.)	1,867	1,680	1,666
Barley (1,000 bu.)	198	225	245
Hay:			
Clover and timothy (1,000 tons)	398	402	498
Tame (1,000 tons)	765	805	980
Tobacco (1,000 lbs.)	2,382	3,588	3,780
Potatoes (1,000 bu.)	3,012	2,040	2,850
Apples (1,000 bu.)	4,134	4,356	1,625
Peaches (1,000 bu.)	345	690	300
Grapes (tons)	1,175	1,300	250

WESTERN AUSTRALIA. See AUSTRALIA.

WESTERN ISLANDS. See HEBRIDES, THE.

WESTERN PACIFIC ISLANDS, British. A number of territories in Oceania (q.v.), of differing constitutional status, which are administered by a high commissioner for the Western Pacific. The high commissionership extends over a sea area of 10,000,000 square miles—4,000 miles from east to west, and 2,500 miles from north to south. The total land area is 17,371 square miles, and the total population numbers 205,864. The office of high commissioner for the Western Pacific Islands is exercised by the governor of Fiji (Sir Alexander W. G. H. Grantham assumed office Jan. 9, 1945), whose headquarters are at Suva, capital of that colony. Australian currency is in general circulation. Territories within the Western Pacific Islands administration are as follows:

Territory	Land area (sq. miles)	Population	Seat of government
British Solomon Islands Protectorate	11,000	93,805[1]	Harira
Gilbert and Ellice Islands Colony	400	34,752[2]	Ocean Island
Tonga (protected state)	269	34,130[3]	Nukualofa
Pitcairn Island (colony)	2	177[4]	
New Hebrides (condominium)	5,700	43,000[5]	Vila
	17,371	205,864	

[1] 1931; [2] 1938–42; [3] 1939; [4] 1943; [5] 1941.

Starbuck, Malden, Flint, Caroline, and Vostock islands, also within the high commissionership, are not included in any group.

A large proportion of the islands fell into Japanese hands during 1942.

(1) British Solomon Islands Protectorate.—Extending over 375,000 square nautical miles, the protectorate comprises: the Southern Solomon Islands* (among them, Guadalcanal, Malaita, Tulagi, San Cristobal, and the New Georgia group); the Santa Cruz group (including Rennell); and the Northern Islands (Santa Isabel, Choiseul, the Ontong Java group, and others). The high commissioner is represented at Harira, capital of the protectorate, by a resident commissioner, who is assisted by a nominated Advisory Council of officials and unofficials. In 1942, the revenue amounted to £41,357, and expenditure to £63,895. Education is in the hands of five missions. Coconuts are cultivated (yielding 24,600 tons of copra in 1940); and other crops include rubber, sweet potatoes, pineapples, and bananas. Kauri pine timber is shipped from the Santa Cruz group; and trochas shell, used in the manufacture of pearl buttons, and bêche-de-mer, a sea slug regarded as a delicacy by the Chinese, are also exported. Exports in 1942 had a value of £131,938; and imports in 1939–40 were valued at £189,722. Military operations were initiated on Aug. 7, 1942 with landings of United States forces on Tulagi and Guadalcanal, where Solomon islanders, led by British officials who had remained behind when the Japanese invaders arrived, served as scouts and guides. Natives also protected Mrs. Emily Sprott, 70-year-old member of the British Melanesian Mission, who was the only person to remain on Santa Isabel Island; during the campaign she rescued 12 members of the United States forces, and buried four others. Most islands of the protectorate were freed of the Japanese in 1943–44.

Tulagi, capital of the protectorate at outbreak of war, became a major base for United States troops, who built many good roads and constructed a fine harbor with wharves capable of handling 100,000 tons of shipping simultaneously. Seabees also erected substantial, permanent steel and concrete buildings on the shores of Guadalcanal Island in the vicinity of Point Cruze. Harira, which replaced Tulagi as capital of the protectorate in 1945, is situated on the coast of Guadalcanal directly opposite Tulagi.

(2) Gilbert and Ellice Islands Colony.—This colony extending over 1,000,000 square nautical miles, comprises: the Gilbert Islands (Abaiang, Abemama, Aranuka, Beru, Butaritari, Kuria, Tarawa, Makin, Marakei, Nonouti, Nukunau, Onotoa, Tabetauea, and Taman); the Ellice Islands (Funafuti, Nanumanga, Nanumea, Niutao, Niulakita, Nui, Nukufetau, Nukulaele, and Vaitupu); the Phoenix group (Birnie, Canton, Enderbury, Gardner, Hull, McKean, Phoenix, and Sydney); and Ocean, Fanning, Washington, and Christmas islands. Canton, administrative headquarters of the Phoenix group, and neighboring Enderbury, constitute an Anglo-American condominium; by an agreement signed in April 1939 the two countries set up a joint control over both islands for aviation and communications purposes "without prejudice to their respective claims" (concerning sovereignty), the arrangement to continue for 50 years. Ocean Island, headquarters of the resident commissioner representing the high commissioner, is the only one of the colony's islands which is not a coral atoll. In 1941, revenue amounted to £58,559, and expenditure was £79,543. The government maintains schools for natives at Ocean, Tarawa, and Vaitupu; elsewhere in the colony, schools are conducted by missionaries. Phosphate deposits on Ocean Island are worked by the British Phosphate Commission, headed by commissioners representing Great Britain, Australia, and New Zealand; the same body also works the deposits on the neighboring mandated island of Nauru. Coconuts (20,000 acres) and pandanus fruit are the chief agricultural products. In 1938–39, exports were valued at £279,438, and imports at £178,767. The Japanese occupied the Gilberts late in 1941, placing a garrison on Tarawa, administrative headquarters, and building an airfield on Makin. On Oct. 15, 1942, 22 white men (missionaries, officials, and traders), put to forced labor on Betio, an island of the Tarawa atoll, were massacred by the Japanese. Tarawa, Makin, and Abemama (once the home of Robert Louis Stevenson) were recaptured by the United States Marine Corps in November 1943; and Funafuti, headquarters of the Ellice Islands, was occupied without resistance and became an American base. Ocean Island remained in Japanese hands until the close of hostilities.

(3) Tonga or Friendly Islands.—An independent kingdom, Tonga comprises 150 islands divided into three groups—Haapai, Tongatabu, and Vavau—and three outlying islands—Niuafo'ou, Niuatobutabu, and Tafahi. Nukualofa, the capital, is on Tongatabu. The monarch (since 1918, Queen Salote Tubou) heads a constitutional government comprising a premier, Cabinet, Privy Council, and Legislative Assembly of 22 members (a speaker, 7 nobles elected by their peers, 7 Cabinet ministers, and 7 elected representatives of the people). The kingdom has its own stamps and currency notes. A British agent, representing the high commissioner, supervises the finances and has jurisdiction over non-Tongan residents. The revenue in 1943 amounted to £A116,180, and the expenditure was £A99,375. In 1942 there were 128 primary schools (67 government and 61 denominational) with 5,125 pupils; 60 students attended Tonga (secondary) college. Most Tongans are members of the Methodist Church. Coconuts and bananas are the principal agricultural products; others include yams, taro, breadfruit, and citrus fruits. Fishing is of considerable importance. Exports in 1942 (including 8,161 tons of copra) were valued at £A119,849, and imports at £A144,110. A protective force landed by the United States Navy early in 1942 constructed an air base with British and Tongan assistance. Shortly thereafter the kingdom formed its first military organization; under command of a New Zealander, the force served with American troops in several of the campaigns in the Southwest

* The Northern Solomon Islands are within the mandated Territory of New Guinea (q.v.).

Pacific. One of the sons of Queen Salote Tubou was a pilot in the Royal New Zealand Air Force.

(4) Pitcairn Island.—Next to Gibraltar, Pitcairn Island is the smallest British dependency. The outlying uninhabited islands of Ducie, Henderson, and Oeno are included within the colony, and for this reason the stamps (first issued in 1940) bear the legend "Pitcairn Islands." The Pitcairners number 176, all but six being descendants of the nine mutineers of the *Bounty* and 18 Tahitians who landed in 1790; all are members of the Seventh Day Adventist Church. The high commissioner's representative on Pitcairn Island is the chief magistrate, Parkins Christian, seventh in direct descent from Fletcher Christian, leader of the mutineers; he is elected annually by popular vote—as are, too, the four other members of the Island Council. In 1940 a General Assembly of all native-born inhabitants passed revised regulations for the island's internal government. The island school has four teachers. The fertile soil produces excellent coffee, sweet potatoes, yams, taro, sugar cane, arrowroot, beans, and many fruits. After Japan entered the war, a British admiralty wireless station was established on Pitcairn.

(5) New Hebrides. See NEW CALEDONIA.

WESTERN SAHARA. See SPANISH COLONIAL EMPIRE.

WESTERN SAMOA. See SAMOAN ISLANDS.

WEYGAND, Maxime, French Army officer: b. Jan. 21, 1867. General Weygand was commander in chief of all Allied forces, succeeding General Gamelin, at the time of the French collapse in the summer of 1940. He remained in France with the Vichy government as war minister until early September, when he was dispatched to Algiers as delegate of the government for North Africa. In July 1941, he acted as governor of Algeria. In November 1941, upon German demand, he was requested to resign and return to France. In late November 1942, he was arrested by the Germans and held as hostage for Gen. Henri Giraud who had escaped from a German prison and joined the Allies. On May 5, 1945, with several other prominent Frenchmen, he was liberated from his Itter Castle prison in Austria by American troops. In the First World War, he worked closely with Marshal Foch.

WHEAT. With an output estimated by the Department of Agriculture on October 1 at 1,149,825,000 bushels, the 1945 wheat crop takes its place as one of the banner crops of all time. The 1944 crop totaled 1,078,647,000 bushels, while the 1934–43 10-year average crop amounted to but 789,080,000 bushels. The large increase over the average crop shows that the American farmer really did his bit when it came to providing food for the fighting forces, the home folks and the starving people abroad, because it was all done with a shortage of labor that was very real. Kansas held on to her position as the leading wheat-producing state with an output in 1945 estimated at 214,679,000 bushels. North Dakota was second with 161,931,000 bushels, and Nebraska was third with 86,366,000 bushels.

WHISKY. See DISTILLED SPIRITS.

WHITE RUSSIA. See UNION OF SOVIET SOCIALIST REPUBLICS (Belorussian SSR).

WHITTLE, Frank, Royal Air Force officer and inventor of the jet propulsion engine: b. Coventry, England, June 1, 1907. In January 1944, the Royal Air Force and United States Army Air Forces revealed in a joint statement the development of a radically new type of propellerless fighter plane, powered entirely by jet propulsion, and indicated it would soon be in production in Great Britain and the United States. In October 1944, Commodore Whittle was awarded the gold medal of the council of the British Royal Aeronautical Society, its highest award and one given on only seven previous occasions over a period of 35 years. (Its first gold medal went to the Wright brothers in 1909.) According to Commodore Whittle, his idea for a jet propelled plane stemmed from a scientific thesis he wrote when he was an air cadet. He started work on the design for his engine in 1933, and four years later, had it working successfully. In 1939, the British Air Ministry appointed the Gloster Aircraft Company to design and build the jet propulsion plane; the inventor's own small company, Power Jets, Ltd., built the engine. By May 1941, engine and aircraft stood ready for their first test flights. The United States Army was informed of the new plane in July 1941, and the following September, Whittle and one of his colleagues took plans and engine parts to the United States, where Bell Aircraft contracted to manufacture the body, and General Electric, the Whittle engine. In October 1942, the first flight of the American model was made by Bell's test pilot, Robert M. Stanley. The American jaypee (jet propulsion) is a two-motored plane; the British, single-engined.

WILKINSON, Ellen, British politician. After labour's victory in the British general election in July 1945, Miss Wilkinson was named minister of education in the Attlee government. She is Great Britain's second woman Cabinet member (the first having been Margaret Bondfield, labour minister in a former labour government), and a seasoned politician. Earlier in 1945, she became a member of the Privy Council.

Daughter of a Manchester cotton operative, Miss Wilkinson attended Stretford Road Secondary School and Manchester University. From 1923 to 1926, she was a member of Manchester's City Council, and in 1924, entered national politics as a labour member of Parliament. She has been member of Parliament for Jarrow since 1935. It was about Jarrow, shipbuilding town left derelict when the great world depression of 1929–31 swept across the Atlantic, that Miss Wilkinson wrote her moving book, *The Town That Was Murdered* (1939). A year after the outbreak of the Second World War, Miss Wilkinson was named parliamentary secretary in the Ministry of Home Security, and by 1942, had become second in authority to Herbert Morrison (then home security minister), and responsible for England's civil defense. In 1944, she became chairman of the Labour Party, and in May 1945, presided over its Blackpool convention at which it was decided to abandon the party's coalition policy with regard to the Churchill government. Miss Wilkinson was a member of the British delegation to the United Nations Conference on International Organization, convened in San Francisco. In addition to numerous articles, and the book previously mentioned, she has written the following: *Clash* (1929), *Peeps at Politicians* (1930), *Division Bell Mystery* (1932), *Why War?* (1934), *Why Fascism?* (with Dr. E. Conze, 1934).

WINDWARD ISLANDS. A group in the Antilles, West Indies, constituting four insular Brit-

ish colonies under a single governor; the islands form part of the eastern barrier between the Caribbean Sea and the Atlantic Ocean. The aggregate area, including dependent islets, is 821 square miles, and in 1940–42 the combined populations totaled 278,444. The Windward Islands comprise the following:

Colony	Area, sq. mi.	Population	Capital
Grenada[1]	133	90,586 (1940)	St. George's
St. Vincent ...	150	60,402 (1942)	Kingstown
St. Lucia	233	73,770 (1942)	Castries
Dominica[2]	305	53,686 (1942)	Roseau
Total	821	278,444	

[1] The Grenadines is an island group administered in part by Grenada, in part by St. Vincent.

[2] Until 1940, Dominica formed part of the Leeward Islands colony.

Although grouped for administrative purposes, the Windward Islands do not constitute a federal colony, there being no common legislature, laws, revenue or tariff. However, the four colonies do unite for certain purposes; and their judiciary and police services are unified with those of the Leeward Islands, a neighboring insular group constituting a single British colony. The governor of the Windward Islands (Sir Arthur Francis Grimble appointed Nov. 19, 1941) has his headquarters at St. George's, Grenada. The governor is ex officio administrator of Grenada; each of the other three colonies has its own administrator. A conference of two delegates from each of the four constituent colonies convened at St. George's during January 1945 to discuss federation with the Leeward Islands; it was recommended that the subject be further considered at a meeting of the unofficial members of all legislatures concerned. While British sterling is legal tender, the United States currency circulates in the Windward Islands. A local air service between the islands of the Windward group was commenced in 1945.

Grenada.—The administrator of the colony (in this instance, the governor of the Windward Islands) is assisted by a Legislative Council of 14 members (3 officials and 11 unofficials, 4 of the latter being nominated and 7 elected). Government revenue in 1942 amounted to £263,849, and expenditure was £225,738; the public debt stood at £350,645. There are 11 government and 42 state-aided elementary schools, and 4 secondary schools. The area under nutmeg has been expanded considerably in recent years, the exports of this spice and of mace being of prime economic importance. Cotton of the Marie Galante variety is cultivated, the crop from 3,000 acres in 1945 being estimated at 375 bales of 400 pounds each. Other crops include cacao, sugar cane, limes, and bananas. Total exports in 1942 were valued at £546,051, and imports amounted to £361,346. Carriacou (area, 13 square miles) is the largest of the Grenadines island-group administered by the colony of Grenada.

St. Vincent.—The administrator (Ronald Herbert Garvey appointed Dec. 23, 1943) is assisted by a Legislative Council of 10 members (2 officials and 8 unofficials, 3 of the latter being nominated and 5 elected). In 1943 revenue amounted to £185,200, and expenditure was £159,855; the public debt was £85,805. There are 36 primary schools, all state-aided, and 2 secondary schools. A high grade of Marie Galante cotton is cultivated in the colony, 75 bales (of 400 pounds each) being estimated as the crop from 400 acres in 1945. The largest area, however, is devoted to arrowroot, St. Vincent producing the bulk of the world's supply. Most of the sugar cultivation in the Windward Islands is on St. Vincent and St. Lucia, production in 1945 being estimated at 6,111 tons. Molasses and rum are manufactured, and coconut plantations yield a large volume of copra. In 1942 exports had a value of £229,630, and imports amounted to £197,168.

St. Lucia.—The administrator (Edward Francis Twining appointed Feb. 10, 1944) is assisted by a Legislative Council of 10 members (2 officials and 8 unofficials, 3 of the latter being nominated and 5 elected). Public revenue in 1943 amounted to £193,566, and expenditure was £165,609; the public debt was £100,250. The 45 elementary and 2 secondary schools are conducted by missionaries with the aid of government grants. In 1940 the United States secured a base in St. Lucia on 99-year lease; there is a naval station on Gros Islet Bay, and an airfield at Vieux Fort. Some 143,000 acres have been alienated for agricultural purposes. Sugar cane is St. Lucia's most valuable crop (see St. Vincent, above, for estimated yield in 1945), and in economic importance the production of limejuice holds second place. Sea-island cotton, grown on 30 acres, was expected to yield 18 bales (of 400 pounds each) in 1945. Other products include coconuts, cacao, honey, and bananas. Rum, molasses, lime oil, and bay oil are manufactured. Total exports in 1943 had a value of £160,905, and imports amounted to £387,196. The colony has 350 miles of roads (150 miles of all-weather highways). There is a commercial airport at Castries.

Dominica.—The administrator (James Scott Neill appointed in 1937) is assisted by a Legislative Council of 10 members (2 officials and 8 unofficials, 3 of the latter being nominated and 5 elected). Revenue of the government in 1943 totaled £149,259, while expenditure amounted to £127,075. Missionary bodies conduct state-aided schools. Dominica is the only island in the British West Indies where Caribs are to be found; 500 of them, of whom one third are of pure blood, live on a reservation of 3,700 acres. Considerable quantities of limejuice are produced. The acreage under bananas declined during the war, owing partly to disease and partly to the higher prices obtainable for vanilla. Coconuts, cacao, and fruits are also of economic importance. In 1943 the total value of exports was £144,458, and imports totaled £244,428. See also BRITISH WEST INDIES.

WINE, American. Upon the cessation of hostilities the American wine industry entered its 1945 vintage season with a bright future, despite a grape crop which, in the eastern growing areas, was below normal. Numerous wartime controls affecting grape growing and wine production had been or were scheduled for removal, and as a consequence a heavier crush and correspondingly greater inventory were foreseen. In preparation for this larger supply, advertising and marketing plans throughout the industry were revised, and greater emphasis placed on distribution and merchandising methods.

Restrictions on the manufacture and use of containers and closures, strictly enforced as a part of the security program, were lifted except in the case of certain metal closures. Transportation facilities were improved when relaxed controls over cars and loadings enabled wineries

and vineyards to move their stocks more readily. Further improvement was expected when the generally congested transportation system should be eased by lessened demand from other commodity shippers.

Release of many workers from essential war plants, shipyards and other emergency occupations returned skilled employees to vineyards and wineries in time to help harvest and process the crop. Price controls, generally removed except where such action might result in an increased price level or adversely affect business, remained in force for wine. However, the Office of Price Administration had established lower ceilings for certain types of wine, and for some services in the industry.

For the first time since 1941 there was no compulsory raisin drying program, the government having indicated what its requirements would be, leaving growers to supply the estimated 260,000 to 275,000 dried tons. All raisin type grapes over that figure were available for wine and other purposes.

The total California grape crop for 1945 was estimated to be 2,678,000 tons, an increase of 164,000 tons over 1944. This figure included 554,000 tons of wine grapes, 513,000 tons of table grapes, and 1,611,000 tons of raisin grapes. Considered from a national standpoint, grape production was expected to approximate the 1944 crop, and to be nearly 12 per cent above the average for the years 1934–43. California, which normally produces about four fifths of the country's crop, seemed certain to fall short of the record 1943 crop by only 7 per cent, and to exceed the ten-year average by 15 per cent.

The eastern crop, grown principally in New York, Ohio, Michigan and Pennsylvania, suffered extensively from adverse weather during the spring, and reports indicated the yield in those areas would be from 33 to 75 per cent under that of 1944, or about 126,500 tons, smallest in 24 years.

Abnormal growing and marketing conditions, responsible for a shorter wine supply during the preceding three years, to some extent affected 1945. Hence, a continued shortage in some wine types was expected for at least a part of 1946, despite the better 1945 vintage. The greater supply derived from the larger crush must be given time to properly age and develop before it will be available for market, but the industry as a whole reflected its optimism for the future in a revival of the annual Wine Week, held October 15 to 22 after a two-year lapse.

During the past few years new capital has been invested in the wine industry, which strengthened its production and distribution facilities. The balance of ownership, however, was not materially changed, and at the close of 1945 approximately one third of the production was owned by individual growers, another third by farmer co-operatives, largely financed by the federal government, and the remainder financed and directed by commercial interests.

A sounder financial position has made it possible for wineries to support their nationwide distribution of more uniform products by national advertising. An estimated $10,000,000 was spent by California wineries alone on advertising and sales promotion, this effort by individual producers reflecting the long-range marketing program conducted by Wine Advisory Board under supervision of the California Department of Agriculture.

Industry leaders expect that California and other American wine growers will take renewed interest in the export market as quickly as trade channels are opened and shipping facilities made available. Although the export market in American wines never exceeded an estimated 900,000 gallons in any one year between prohibition repeal and the war, many producers are proud of the recognition accorded their wines in other countries, and cultivate this market for prestige as well as profit.

Another probable postwar trend in marketing California wine is a change in bottling operations. Before the war an annual average of about 71 million gallons of California wine were sold in all markets between 1938 and 1941, with a peak of 96 million gallons in 1942. About 80 per cent of this wine was shipped from California wineries in bulk to points outside the state, a third to be bottled by winery branches or subsidiaries, the rest by independent bottlers. The remaining 20 per cent bottled in California was largely consumed within the state.

Due to wartime marketing conditions bottling operations in California increased sharply, and industry sources estimate that only about 50 per cent of the state's 75 million gallons sold in all markets moved out of state in bulk. About two fifths of the remaining gallonage, bottled within the state, was consumed there and the rest shipped to markets throughout the country. Informed industry members believe that postwar marketing will reach a point where 40 per cent of California wine will be bottled at the winery and shipped as case goods.

Rebuilding and replanting by many producers has begun, and the trend to larger plantings of rare grape varieties for premium quality wines, noted last year, has been further intensified. Trade and consumer education through the *Wine Study Course* published by the Wine Advisory Board has continued, more than 25,000 enrollments having been made. Colored, talking motion pictures on the growing of grapes and the production and marketing of wines have been exhibited throughout the country, while plans are being completed for other films more directly concerned with wine service and promotion in hotels and restaurants.

It is believed the rate of wine consumption in the United States will rise steadily, in line with the increase noted before the war, and that the 100 million gallon consumption of California wine alone, representing about 90 per cent of the national total, will be exceeded.

GODFREY IRWIN,
Wine Institute, New York City.

WISCONSIN. East North Central state, United States; admitted to the Union May 29, 1848. Population (1940): rural, 1,458,443; urban, 1,679,144; total, 3,137,587. Land area, 54,715 square miles, divided into 71 counties. Principal cities, with 1940 populations: Milwaukee, 587,472; Madison, the capital, 67,447; Racine, 67,195; Kenosha, 48,765; Green Bay, 46,235; La Crosse, 42,707; Sheboygan, 40,638; Oshkosh, 39,089.

Chief State Officers, 1945.—Governor, Walter S. Goodland; lieutenant governor, Oscar A. Rennebohm; secretary of state, Fred R. Zimmerman; treasurer, John M. Smith; budget director, E. C. Giessel; attorney general, John E. Martin.

Judiciary.—Chief justice of the Wisconsin Supreme Court, Marvin B. Rosenberry; associate justices, Chester A. Fowler, Oscar M. Fritz, Ed-

ward T. Fairchild, John D. Wickhem, Joseph Martin, Elmer E. Barlow.

Legislature.—The state legislature (Senate, 33 members; Assembly, 100) meets biennially in odd years on the second Wednesday in January.

Education.—Public elementary schools (at last report), 6,856, including city, village, state graded, and one room rural schools; teachers, 15,300; pupils, 361,609; average yearly salary of elementary school teachers, $1,290. Public high schools, 450; teachers, 6,000; students, 158,248; average yearly salary of high school teachers, $1,660. There are 10 state teachers colleges in Wisconsin.

Finances.—The following statement of Wisconsin's finances for the fiscal year 1944–45 was supplied by John M. Smith, state treasurer:

Balance in treasury (general fund), beginning of fiscal year 1944–45	$ 17,078,104.91
Receipts, 1944–45	182,008,920.81
Total	$199,087,025.72
Disbursements, 1944–45	177,171,734.20
Balance, beginning of fiscal year 1945–46	$ 21,915,291.52[1]

[1] Does not include $15,000,000 invested in government bonds.

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	84,991	116,536	105,534
Oats (1,000 bu.)	80,256	118,938	153,830
Buckwheat (1,000 bu.)	193	418	375
Wheat (1,000 bu.)	1,659	1,423	1,484
Barley (1,000 bu.)	19,589	5,062	3,674
Rye (1,000 bu.)	2,559	1,000	1,176
Hay:			
Alfalfa (1,000 tons)	2,191	1,730	2,080
Clover and timothy (1,000 tons)	3,041	4,473	5,101
Tame (1,000 tons)	5,844	6,549	7,180
Wild (1,000 tons)	220	217	180
Soybeans for beans (1,000 bu.)	319	735	676
Tobacco (1,000 lbs.)	26,375	29,700	37,288
Potatoes (1,000 bu.)	17,542	11,844	13,650
Apples (1,000 bu.)	666	805	339
Cherries (tons)	8,766	15,000	6,000
Grapes (tons)	445	600	450

WITOS, Wincenty, Polish statesman: b. Wierzchoslawice, Galicia, Poland (then part of Austria-Hungary), 1874; d. Krakow, Poland, Oct. 31, 1945. Nominal head of the Piast or Polish Peasant Party, Witos was twice premier of Poland (1920–21; 1923–26) and recently served as vice president of the Polish National Council. Witos was a member of the Galician Diet from 1908 to 1914, and a deputy in the Parliament of the Austrian Empire from 1911 to 1918. Together with Ignace Paderewski and Marshal Józef Pilsudski, he played an important role in the formation of the Polish Republic in 1918. In 1928 he led a movement seeking the restoration of political government and demanded that President Ignacy Mościcki resign. Marshal Pilsudski jailed the leaders of this movement and appealed to the country in a new general election, in which Witos, although kept in a prison cell during the campaign, won a seat in the Diet. In 1931 he and nine other politicians were convicted at Brest-Litovsk of plotting to overthrow the government, and he was sentenced to 18 months' imprisonment and loss of citizenship rights for three years. The sentence was not confirmed by the nation's Supreme Court until October 1933. He went into exile in Czechoslovakia until 1939, when he returned to resume formal leadership of the Polish Peasant Party. Witos was held a prisoner in Poland during the German occupation, but recently he played a prominent part in the discussions with Allied authorities that led to the formation of the Polish government in power in November 1945. An opponent of the exiled Polish government in London and considered a leader of Polish democratic elements, he was invited by the Allies to aid in the Polish National Council. In April 1945, his name was included in the list of 16 Polish underground leaders who "disappeared" on the eve of projected political discussions in London and Moscow. In May the Russians denied that he was under arrest, and he was not brought to trial in Moscow with the 16 leaders charged with subversive activities behind the Red Army's lines in Poland. On June 23 he was named as one of the three members of the presidential council of the newly organized Polish government of national unity, although he had been too ill to attend the Moscow conference which led to the formation of this new government.

WOMEN'S ARMY CORPS (WAC). The purpose of the Women's Army Corps was defined by the law which created the Women's Army Auxiliary Corps on May 14, 1942: to make available to the army the knowledge, skills and specialized training of the women of the nation.

Not very many people know that the bill on which congressional action was completed on May 14, 1942, had been introduced in Congress by Congresswoman Edith Nourse Rogers many months before that time. It was introduced even before Pearl Harbor as part of the "Peacetime Preparedness Program." No further congressional action had been taken and no publicity had been given it until after Pearl Harbor. After that event interest in the bill ran high, and during the succeeding months the legislative action was completed.

Col. Oveta Culp Hobby, later director of the corps, was at that time one of the civilian consultants to the War Department. The present deputy director, Col. Helen Hamilton Woods and Maj. Marjorie Onthank also served the War Department in a civilian capacity before going into the corps.

Planning for training, for housing, for assignment, for uniforms, was originally based on a strength of 25,000 within one year. Yet more than 50,000 women were recruited within the first six months. The old Aircraft Warning Service contributed its experience and personnel to the newest group of women in the army. In those early days, the War Department exercised a strong centralized control over the Women's Army Auxiliary Corps, in order that a basis of operating problems might become established for the purpose of making policies. It had to be determined how far the regulations that applied to men should apply to women. But before the passage of the Women's Army Corps Bill, policies were established and operations were being decentralized. In the late spring and early summer of 1943, Wacs were no longer assigned to service commands and attached to other commands for operations, but were assigned to all using agencies. This is the system which now operates throughout the three major commands in the Zone of the Interior, and in foreign theaters.

The integration of the Wacs into the army was on its way when the Women's Army Corps Bill was signed on July 1, 1943. The bill was

Public Law 110, which made the Women's Army Corps a component part of the United States Army and eliminated the extra "A" for "Auxiliary" from its common name.

The director of the Women's Army Corps became a full colonel in the army. By September 30, the changeover, WAAC to WAC, was completely accomplished. All enlisted members and officers who passed the physical and mental requirements were administered the army oath. The Office of the Director, WAC, became a part of the Office of the Commanding General, Army Service Forces. Later, with Wacs serving in the three major commands and in overseas theaters, it was determined better organization to move the Office of the Director, WAC, to the General Staff, G-1 (Personnel).

Public Law 110 gave women identical military ranks and ratings with men, and the full privileges of the Army of the United States. Wacs receive insurance benefits, free postage, and allowances for dependents. They are subject to army regulations. They observe the same military traditions, customs, and courtesies as men. They are eligible to receive such military awards as they earn in service. In addition to these awards, a WAAC service medal is merited by those members of the Women's Army Auxiliary Corps who continued to serve in the Women's Army Corps.

To date, Wacs have been included in the rosters of recipients of the Distinguished Service Medal, Air Medal, Bronze Star, Soldier's Medal, Legion of Merit, Purple Heart, and awards by foreign countries, including the French Croix de Guerre and the Legion of Honor.

Recruiting for the Women's Army Corps was accomplished through the regular United States Army Recruiting and Induction Centers throughout the United States. Standards necessitated two years of high school, successful completion of mental and physical examinations and an age limit between 20 and 50.

Basic training of women was accomplished for about 60,000 enlisted women at Ft. Des Moines, Iowa; about 58,000 at Ft. Oglethorpe, Ga., about 23,000 at Daytona Beach, Fla., and a few additional thousand at Ft. Devens, Mass. and Camp Ruston, La. The training consisted of six weeks indoctrination into the army. At the same training centers were set up a variety of advanced specialist schools for clerks, cooks and bakers, motor transport, and medical technicians. Other enlisted women attended army specialist schools for the study of photography, code, communications and radio. Officer Candidate Schools at Ft. Des Moines and Ft. Oglethorpe gave three-month courses, adapted from the courses given to male officers, to women chosen from the ranks after an initial group had been trained. Selectees, after at least three months' service as enlisted women in the field, were recommended by their commanding officers and officer candidate boards.

Women officers received additional training at many of the Regular Army schools for officers, such as Adjutant General's; Quartermaster; Finance; Morale and Special Services; and the Command and General Staff School.

Thus was accomplished the training of women to serve in the army in all theaters of operations. The first overseas contingent reached North Africa in July 1943, and served later throughout the Italian campaign. The second contingent went to England as part of the Eighth Air Force. Other overseas units were part of the Transportation Corps, serving in France, and on the other side of the world in the Pacific Theater. Members of the French unit ended up in Berlin—members of the South Pacific unit, in Manila, China and Tokyo. These Wac contingents followed the headquarters of their branches.

Wacs in the continental United States and abroad served in such varied jobs as code clerks, cryptographers, communications operators, weather observers, briefing clerks, link training instructors, small arms repairers, chemical warfare instructors, fiscal clerks, laboratory technicians and hospital-ward aids, jeep and truck drivers, enlisted aides to the Secretary of War and secretaries to generals. Some 100 attained flying status as flight engineers, crew chiefs, and flight traffic clerks.

After such varied experiences, Wacs return at an equal rate with men to civilian life, bringing qualifications and training which should make a substantial difference to industry and to their communities.

PATRICIA M. CHANCE,
Major, Women's Army Corps.

WOMEN'S BUREAU, Federal. This bureau in the United States Department of Labor is the federal agency authorized to "formulate standards and policies which shall promote the welfare of wage-earning women, improve their working conditions, increase their efficiency, and advance their opportunities for profitable employment." Established in July 1918 as the Woman in Industry Service, to protect the interests of women in munitions plants in the First World War, and converted into the Women's Bureau in 1920, the bureau became during the Second World War the main source of information on the utilization of women workers in war production. Since V-E and V-J days the bureau, as a result of its special studies in the emergency period, both on the war adjustments and the postwar employment wants and outlook for women workers, has been able to provide factual data and to make sound recommendations to assist in meeting reconversion problems of women workers.

During 1945 the bureau carried forward consistent lines of research and field investigation to aid with the long range, as well as with the more immediate, situation of women workers. A series of studies begun in 1944, analyzing the effects of wartime alterations in hours, and thus enabling the bureau to advise as to the workday and workweek most conducive to the well-being of the women workers and their production records, was completed. Published reports will be forthcoming. In preparation also is a report on women's jobs in railroad yards and one on the general study of women in the traffic, commercial, and accounting departments of the telephone industry, covering their occupations, job classifications, duties and opportunities, rates and earnings, and working conditions.

At the request of the Social Security Board, the preparation of a joint report on the possibility of extending old-age and survivor's insurance to household employees was undertaken. The Women's Bureau section will deal with the need by these workers of such a measure, while that of the Social Security Board will present the technical details and administrative methods involved in such coverage.

The bureau has continued its research in the fields of labor legislation and the legal status

of women in civic and political matters. In addition to publishing bulletins of charts analyzing state labor laws for women, with wartime changes, a report evaluating such modifications and incorporating findings and recommendations is in preparation.

The special study, started in 1944, of selected local unions in war industries to ascertain to what extent women members have participated in union activities and have received equal treatment with men as to rate for the job and seniority rights has been completed and a special report is pending. Another phase of the bureau's program with unions has been educational with respect to their participation in community programs and development of workers' education projects.

In general, consultative and advisory services, to many different kinds of organizations and agencies concerned in some way with women workers, have constituted an important and extensive part of the bureau's program during the entire year. Its services were utilized by the various war agencies, including the War and Navy departments, and the Maritime Commission; state labor departments; employer organizations, labor unions; educational officials; health and welfare agencies; women's organizations. Its regional offices in San Francisco, St. Louis, Chicago, Detroit, Philadelphia, New York City, and Boston, and the headquarters in Washington, made available the counseling service the bureau offers on all phases of women's employment.

Throughout the year the bureau advised with state labor departments concerning appropriate temporary amendments of labor laws for women that at the same time would facilitate war production and safeguard the welfare of women workers. The bureau has recommended policies and techniques for the administration of such wartime legislation for women. It also has co-operated with the states in the administration of minimum wage laws for women, has advised concerning coverage and standards that would advance both the war and the peace effort through the stabilization of women's employment. The progress of effecting the principle of "the rate for the job," or "equal pay" for women, was followed and the bureau acted as a consultant to both states and the federal government in the drafting of "equal pay" laws.

Two important conferences were convened by the bureau to develop a co-ordinated program for the purpose of safeguarding the interests of women workers during the postwar period. At the first conference, which was attended by 30 key women from large national organizations (including labor, social, civic, religious, racial, and women's groups), a Reconversion Blueprint for Women was adopted. Embodied in it were essential standards, policies, and procedures for the readjustment of workers in the transition from a wartime to a peacetime economy. The second conference was related to union programs toward similar ends and was attended by 31 women labor leaders representing 23 international unions.

The bureau's program of co-operation with other American republics, by authority of the State Department, was continued in 1945. The program of internship training begun the previous year was continued. Materials and speakers were sent to South American countries interested in the development of good working standards for women and of their own national bureaus for the promotion and protection of such standards.

Postwar Employment Wants and Needs of Women.—Though reports on this important survey have not yet been issued, considerable data has been released to the public since V-E Day. The study consisted of personal interviews with women workers in 11 war-congested areas in 1944–45 for the purpose of determining experience, occupations, economic responsibilities, and postwar plans of women workers. The 13,000 women interviewed (representing some 1,250,000 women workers) were working in war plants, consumer goods manufacture, trade and service industries (except household employment), government, the professions, and other employment. The 11 areas surveyed were: Detroit-Willow Run, Mich.; Dayton-Springfield, Ohio; Wichita, Kans.; Kenosha, Wis.; Springfield-Holyoke, Mass.; Erie County, New York; Baltimore, Md.; Mobile, Ala.; Seattle-Tacoma, Wash.; San Francisco-Oakland, Calif.; and Elkton, Md. About 75 per cent of the women covered planned to continue working after the war and about 70 per cent stated that they wanted to continue work in the areas where they had been employed during the war. The proportions varied considerably from area to area. One fifth of the women workers surveyed lived apart from their families. Of every 10 women workers living with their families, 9 contributed regularly to the support of their families; and of those who lived with their families and contributed regularly, at least half gave 50 to 100 per cent of their earnings to the family. Of the women living apart from family groups, about 1 in 6 contributed regularly to the support of others. In many instances a woman was the sole wage earner of a family group.

The reports and pamphlets published in 1945 are summarized in the following paragraphs: *The Outlook for Women in Occupations in the Medical and Other Health Services:* A series of 10 bulletins covering the following professions—*Physical Therapists, Occupational Therapists, Professional Nurses, Practical Nurses* and *Hospital Attendants, Medical Laboratory Technicians, Medical Record Librarians, X-Ray Technicians, Women Physicians, Women Dentists,* and *Dental Hygienists.* For women physical and occupational therapists, who form about 90 and 99 per cent, respectively, of the workers in these occupations, bureau studies predict a vital postwar role in rehabilitation service. Professional nurses and practical nurses and attendants can anticipate a greater demand on their services than in prewar years if the postwar needs of the public are met. The demand for X-ray technicians and also for qualified medical-record librarians is expected to expand, while some scaling down from the wartime employment of medical laboratory technicians is predicted. Indications are that women physicians will have larger opportunities than before the war, as an increased demand for physicians of all types is anticipated. More employment opportunities for women dentists also are foreseen. A gradually increasing demand for dental hygienists in public health service and in institutional work is expected.

Women's Wartime Jobs in Cane-Sugar Refineries: A report on 5 cane-sugar refineries visited by bureau agents showed that women, who before the war were generally restricted to the lighter packing jobs, have helped alleviate the labor shortage by replacing men at the machines used for refining sugar and on jobs in

the cube-making sections, packing and shipping departments, and warehouses.

Employment of Women in Army Supply Depots in 1943: In 12 depots visited by the bureau representatives in 1943, women constituted close to one third of the civilian force. Wide variations were found in the depots' use of women. Also stressed was the possibility in some instances of more extensive replacement of men by women. In one depot almost half the force in the industrial divisions was feminine.

Negro Women War Workers: This bulletin describes some of the jobs held by Negro women in the war period, showing that Negro women's employment increased by 40 per cent between 1940–44. There was a marked shift of Negro women workers from farm to factories, especially to plants making munitions.

State Labor Laws for Women with Wartime Modifications: Part I. Analysis of Hour Laws; Part II. Analysis of Plant Facilities Laws; Part III. Analysis of Regulatory Laws, Prohibitory Laws, Maternity Laws; Part IV. Analysis of Industrial Home-Work Laws.

Protect Future Wage Levels Now: This leaflet stresses the need for state minimum-wage legislation in the 22 states without such laws.

Women White-Collar Workers—Re-tool Your Thinking for Your Job Tomorrow: Tips are given to the white-collar girl on job attitudes, adjustment, training which will help her to hold her job as well as to advance in the competitive postwar world.

Union Series Leaflets, 1945: Data for the bureau studies were obtained through interviews with officers and women members of AFL and CIO unions in a large war industry area in the midwest. The unions represented had a total membership of 200,000, of whom 75,000 were women.

No. 1—Seniority Status of Women in Unions in War Plants. Over four fifths of the union contracts studied by the bureau had general seniority rules that applied to men and women alike, and only one fifth had separate seniority lists for men and women.

No. 2—Rate for the Job. One half of the union contracts provided for equal pay, one half called for the same automatic progression for men and women, and one third stipulated that the entrance rate for men and women should be the same. The leaflet points out that the establishment of the wage rate for the job, regardless of the sex of the worker, is of the utmost importance to the entire wage structure.

No. 3—Union Provisions for Maternity Leave for Women Members. Only 5 of the union contracts had specific maternity-leave provisions. In most local unions no attention had been given to this question, and in some plants women were discharged when pregnancy became known. Attention should be directed to maternity-leave provisions in order to protect the health of mother and child, to prevent the expectant mother from being discharged, to protect her right to return to her job, and to see that her seniority is retained.

No. 4—Unemployment Compensation—How It Works for Working Women; and also a leaflet entitled *Women's Eligibility for Jury Service.*

FRIEDA S. MILLER,
Director, Women's Bureau.

WOMEN'S CLUBS, General Federation of. In October 1944, the board of directors of the General Federation of Women's Clubs approved a new youth program. A Youth Conservation Committee was established under the chairmanship of Judge Anna Kross of New York City to develop national, state and local plans to co-ordinate all public and private resources in an effort to curb juvenile delinquency. The co-operation of experts in the fields of education and social welfare has been secured and the foundations laid for a far-reaching program.

War service activities of the General Federation were continued until V-J Day—recruitment for the Cadet Nurse Corps and the women's services, salvage, Red Cross activities, and recreational projects. In addition, an intensive recruitment drive for the Women's Land Army was conducted.

The federation's special bond selling campaign for 1944–45 was completed in June. Total war bond sales reported by clubwomen from June 1944, to June 1945, amounted to $153,847,093, entitling the federation to markers in a fleet of navy planes.

The General Federation was invited by the Department of State to send a consultant to the United Nations Conference in San Francisco. Mrs. LaFell Dickinson, president of the organization, served in this capacity throughout the conference. Mrs. William Dick Sporborg, chairman of the federation's International Relations Department, and Mrs. Earl Shoesmith, then dean of presidents, assisted Mrs. Dickinson as associate consultants.

Major legislative efforts of the General Federation were directed toward securing renewal of the Trade Agreements Act and United States ratification of the United Nations Charter. Sixty-five thousand pieces of study material and 45,000 communications to federation personnel were mailed during 1944–45 in connection with the Dumbarton Oaks proposals and the United Nations Charter. Educational material on all existing and proposed international organizations was widely distributed.

In March a Public Health Institute for state health chairmen of the General Federation was arranged by Surgeon General Parran of the United States Public Health Service, in co-operation with Mrs. Marjorie Illig, the General Federation's public health chairman. Meetings were held at the National Institute of Health, Bethesda, Md. Similar institutes are being conducted at state and local levels as a result of this national institute.

Other activities included the assembling of thousands of kits for needy Russian families, participation in the United National Clothing Drive and circulation of exhibits and lectures on masterpieces in the National Gallery of Art in Washington, D.C.

The federation maintains headquarters at 1734 N Street, Northwest, Washington, D.C. and is composed of 16,500 clubs approximating 2,500,000 members.

MRS. LAFELL DICKINSON,
President, General Federation of Women's Clubs.

WOMEN'S RESERVE OF THE UNITED STATES COAST GUARD RESERVE (SPARS). The history of the Women's Reserve of the Coast Guard, popularly known as the SPARS, has been one of expanding activity until the closing months of 1945 when the organization began its demobilization program as the Coast Guard returned to a peacetime status. The first months of 1945 found the SPARS at the peak of their strength in numbers and in the variety of duties performed to release

coast guardsmen for combat duty. There were approximately 900 SPAR officers and 9,000 enlisted SPARS, assigned to district offices, training stations, radio stations, air stations, repair bases, warehouses, supply depots, captain of the Port offices, and Merchant Marine hearing units.

Enlisted women held 30 different ratings, including such specialized rates as coxswains, photographers, printers, radiomen, radarmen, radio technicians, cooks, and parachute riggers. By the end of August 1945, 64 SPARS had been advanced to the highest enlisted rating, chief petty officer. The highest-ranking SPAR officer is Capt. Dorothy C. Stratton, director of the Coast Guard Women's Reserve since its organization, left the service Jan. 16, 1946. Her successor as Spar director is Commander Helen B. Schleman. SPAR officers have performed practically all communications coding and decoding at shore establishments. They have proved adept at finance and supply work and as office managers.

As a congressional amendment to the original law authorizing the Women's Reserve of the Coast Guard permitted SPARS to volunteer for service in Alaska or Hawaii after September 1944, the summer of 1945 found 200 enlisted SPARS and officers on duty in Ketchikan and 200 in Honolulu. The expansion of the SPAR program to include these two areas made possible the return to the states of a comparable number of men who had served many months outside the United States.

By the third anniversary of the establishment of the Coast Guard Women's Reserve, Nov. 23, 1945, the SPARS were being demobilized with a view toward complete demobilization by June 30, 1946. Those who remained helped the Coast Guard to finish its wartime assignment by working at jobs to bring the men home rather than to release them for combat. Separation centers throughout the country were "manned" to a large extent by SPARS, operating switchboards, arranging transportation, supplying information, and completing service records. In district Coast Guard offices and at headquarters in Washington, SPARS helped process the papers of the returning coast guardsmen and to put the Coast Guard's wartime records in order.

SPARS have always had the same opportunity for advancement and the same benefits and allowances as coast guardsmen. Like other members of the armed forces, they are eligible for free medical and dental care, low-rate government insurance, benefits for war veterans, and other privileges extended to those in military service.

Training for enlisted SPARS consisted of six weeks' basic indoctrination, followed by from 6 to 15 weeks of specialized training for those selected for further instruction. The final class of SPARS was graduated from the Coast Guard Training Station, Manhattan Beach, New York, in September 1945.

SPAR officers received their training in an eight-week course at the Coast Guard Academy, New London, Conn., the academy for regular Coast Guard cadets, or in a sixteen-week course at the Pay and Supply School, Palm Beach, Fla. The training course for SPAR officers was concluded late in 1944.

The name SPAR was coined by Captain Stratton as a combination of the first letter in each word of the Coast Guard motto, "Semper Paratus" and its translation, "Always Ready."

ELLIS REED-HILL,
Commodore, U.S. Coast Guard.

WOMEN'S RESERVE, United States Naval Reserve (WAVES). The end of the war found 86,000 members of the Women's Reserve of the United States Naval Reserve serving in 900 stations in the continental United States and in Hawaii. Officers and enlisted women were on duty in nearly every type of shore activity including air stations, naval hospitals, district headquarters, navy yards, and supply depots and at that time they composed 18 per cent of the total naval personnel assigned to shore establishments in the continental United States.

The scope of service for WAVES was enlarged during 1944 to include their assignment for the first time to naval stations outside the continental United States. The first WAVE officers went overseas in October 1944, less than a month after Congress passed a bill permitting volunteers to be assigned outside the continental United States to the American Area and to the territories of Hawaii and Alaska. The first large group of enlisted women marched down the gangplank of a transport in Pearl Harbor Jan. 6, 1945. By August 1945 when the quotas of WAVES going overseas were canceled, there were 4,000 WAVES on duty at activities in the 14th Naval District. WAVES had also been on temporary duty to such places as Alaska, the Aleutians, Puerto Rico, and Bermuda.

With the surrender of Japan, procurement for the Women's Reserve was halted immediately. Classes currently in training schools for WAVES finished their training and were assigned to duty, and no new training programs were opened. The last class of officer candidates was graduated from a school in Washington Sept. 28, 1945. This school had replaced on a small scale the training formerly carried on at the first midshipmen's school for WAVES at Northampton, Mass. On Oct. 1, 1945, the last class was graduated from the recruit center in New York City. The specialist training program for WAVES was completed when the last class of women to receive Hospital Corps training was graduated in early January 1946.

The members of the Women's Reserve are being demobilized according to a release formula which provides them with lower critical scores than those for navy men, and which was established with a view to permit the release of women from the service at the same relative rate as the men. The WAVES on duty in Hawaii are being returned to the United States for separation from the naval service as they become eligible for discharge under the release formula and as transportation can be provided.

Five separation units (WR) specifically established for the release of WAVES opened Oct. 1, 1945, at New York, N.Y.; Washington, D.C.; Memphis, Tenn.; Great Lakes, Ill.; and San Francisco, Calif. As in the case of navy men, WAVES are separated from the service at the unit which serves their home territory. Women are processed in three days or less after their arrival at the unit. There WAVES receive a final medical examination, an exit interview, final pay, and the services of the civil readjustment program. Among other separation records all enlisted women receive a navy rating description which interprets their navy jobs in terms of comparable civilian occupations, and officers receive qualifications jackets which outline their navy and civilian experience.

The Women's Reserve of the United States Naval Reserve was established by an act of Congress in July 1942 which authorized the ap-

pointment of women to fill shore positions in the continental United States, thereby releasing male naval personnel for combat duty. Additional legislation in November 1943 provided that WAVES would be entitled to all allowances or benefits available to navy men except that husbands of enlisted women may not be considered as dependents to receive allowances. The director of the Women's Reserve is Capt. Mildred McAfee Horton, USNR.

WOODLARK. See PAPUA, TERRITORY OF.

WOODROW WILSON FOUNDATION, The. This foundation was established in 1922, during Mr. Wilson's own lifetime, in recognition of the national and international services of Mr. Wilson, who labored to create a world government by a "reign of law, based on the consent of the governed, and sustained by the organized opinion of mankind."

Publications in 1945 include *The Bretton Woods Proposals: A Reading List; The Lost Peace: A Chronology,* compiled by Frank Barth; the *Crimea Conference Report;* 600,000 copies of the *Dumbarton Oaks Proposals;* and *Fifty Questions and Answers on the United Nations Charter.* The foundation had a direct part in both the publication and distribution of Denna F. Fleming's *The United States and the World Court* and was instrumental in making possible the compilation of a *League of Nations Bibliography,* to be published by the Columbia Press. Again it reprinted and distributed the *Annual Report of the Acting Secretary-General of the League of Nations;* and issued the fourth revised edition of *World Organization: An Annotated Bibliography,* compiled by Hans Aufricht, and a revised edition of *Official Documents Issued During the Two World Wars.* The following articles and speeches were reprinted in pamphlet form: Wendell Willkie's *Our Sovereignty: Shall We Use It?;* Raymond B. Fosdick's *The Meaning of Dumbarton Oaks;* Hamilton Fish Armstrong's *Last Time;* and Raymond Swing's *Dumbarton Oaks in a Power World.*

The foundation made a grant of $4,000 to the Commission to Study the Organization of Peace to aid in its educational work among farm and rural groups throughout the country, and another grant of $1,500 to help launch the Postwar Information Exchange, which aims to bring together and make mutually available the combined experience of several score organizations which are seeking the best practical methods and the most useful materials for popular education in problems of international organization and peace.

The foundation acquired a six-story building at 45 East 65th Street, New York 21, for its new headquarters, and it was dedicated Woodrow Wilson House on April 17, 1945. The annual meeting took place on Oct. 5, 1945. Officers of the foundation include Arthur Sweetser, president; Mrs. C. Burnett Mahon, director; and Julie d'Estournelles, assistant director. The foundation's total assets on April 30, 1945, amounted to $820,402.68.

WOOL. The 1945 wool crop of the United States was estimated by the Department of Agriculture at 322,621,000 pounds, as compared with the 1944 crop of 347,094,000 pounds, and the 1934–43 ten-year average crop of 370,749,000 pounds. Texas, the leading wool producer, clipped 78,908,000 pounds in 1945; Wyoming, 25,631,000 pounds; Montana 23,958,000 pounds; and California, 19,967,000 pounds.

WORLD COURT. See LAW, Section 12.

WORLD POLITICS. The year 1945 was replete with military and diplomatic events that reached their climax in the unconditional surrender of Germany and Japan and the occupation of their territory by the armies of the conquering powers. As the year opened, Germany had pushed her offensive (Battle of the Bulge) deep into Belgium. It was not yet clear that the drive could be contained. On the Italian front, the deadlock continued. In eastern Europe, the Red Army was laying siege to Budapest, advancing into East Prussia, but had been stopped before Warsaw and in the Carpathians. Germany's seapower had been crushed or controlled; her airpower, shaken but not impotent; her army and matériel, as far as could be discerned, was fairly intact. In the Orient, the reconquest of the Philippines was under way. Japan had opened an all-land route from Manchuria to French Indo-China, compelling United States air forces to relinquish strategic air bases in the entire area. The enemy was slowly yielding ground in Burma but was still strongly entrenched. Japanese air and seapower had been dealt staggering blows. Her land forces were intact.

Predictions of high officials were that the war in Europe would go into the spring or summer of 1946; and in the Pacific, well into 1947. These forecasts were not essentially different as late as March 1. The capitulation of Germany in May and Japan in August found the statesmen of the victorious powers far behind the accomplishments of the military forces. This dilemma arose not only because of the unexpected collapse of the Axis, but also because statesmen had felt it expedient to hold in suspense certain delicate political questions upon which preliminary explorations disclosed no common ground for agreement. Differences within the ranks had smouldered while the physical conflict raged and had kindled when victory was assured. When immediate danger had passed, nationalistic interests came to the fore, giving rise to conflicts.

In spite of official and semiofficial scoldings within the Allied ranks, each disclosing a "holier-than-thou" attitude, there were notable accomplishments on the diplomatic front throughout the war. The contemplation of what has been achieved in conciliating political differences should give pause to those who may be too quick to conclude that effective collaboration in the interest of peace cannot be attained. Diplomatic moves are not unlike those which characterize human relations in the realm of small things: they are roundabout, devious. It may not be the right way, but it is human. In world diplomacy, the stakes are large. It may be said that world peace is the common object, but each statesman fears that his country will give more than it gets. Witness the outcry on the home front where a foreign minister yields a point. The impasse is hard to dissolve, but the effort goes on. Nobody threatens to give up. Important results have been attained. It is the last word that will be decisive as to whether the nations that have the peace of the world in their keeping can get together on what are fundamental rather than the incidental things.

In the discussion of negotiations among the victorious powers, it would be pertinent to chronicle not only those agreements that have been consummated through concession and compromise, but also those concerning which there

has been virtual unanimity of opinion. However, space requirements necessitate the confinement of this contribution to its peculiar province, namely, a discussion of events and pronouncements which disclose divergent or conflicting policies within the coalition of the victorious powers; solutions, if any; and the status of negotiations on problems upon which agreement has not yet been reached.

(It would contribute to orderly classification, if it were feasible, to divide the political events of the year into two categories, making the defeat of the Axis the dividing line; but this order can be observed only within limits. Certain agreements, in anticipation of victory, and others consummated thereafter as the immediate consequence of victory, may of course be so classified. However, many of the most acute issues persisted throughout the year, becoming more critical when the victors turned their attention to adjustments and relationships that will determine the framework for the new world that is emerging, and the position of each nation in it. It appears expedient to limit the discussion of previctory diplomacy to negotiations that eventuated in definitive accomplishments within the period; and to postvictory diplomacy, not only those new problems that arose as a consequence of victory, but also old problems that simply came into sharper focus when action upon them could be deferred no longer.)

Previctory Diplomacy

The Yalta Conference.—A conference of the Big Three—President Franklin D. Roosevelt, Prime Minister Winston Churchill, and Premier Joseph Stalin—was held at Yalta in the Crimea, Feb. 4–11, 1945. Aside from agreements on military strategy arrived at by chiefs of staffs who accompanied the leaders to Yalta, the important discussions had to do with matters of principle affecting the political and the economic reconstruction of Europe, and the proposed world security organization, both in anticipation of victory. The last meeting of the Big Three had taken place at Teheran, 14 months previously. Meanwhile, many problems upon which it was believed agreements had been reached *in principle*, had again become critical as occasion arose to apply principle to rapidly emerging situations. The atmosphere was clouded by charges of bad faith made in the press of the three countries against one or the other ally. These charges were seldom made by heads of governments, but more frequently emanated from semiofficial sources, perhaps as trial balloons. Many of them were made by people who were ignorant or irresponsible. Perhaps it would be fair to say that ill-advised and misinformed statements create a background of artificial barriers to understanding that may be almost, if not quite, as difficult to surmount as the persistence of differences in matters of principle.

The problems with which the conferees on the Black Sea wrestled, and reported progress, had to do with the following: the occupation of Germany; reparations; liberated countries; Poland, Yugoslavia; veto rights in security council of proposed world organization; voting rights in the assembly.

Gen. Charles de Gaulle, head of the provisional government of France, insisted on his right to participate in the conference on an equal basis with the Big Three, to represent French interests in Europe, with special reference to French claims on German territory west of the Rhine. The Big Three apparently ignored General de Gaulle's claims on the ground that France had capitulated at the Wehrmacht's first onslaught in spite of her commitment to make no separate peace with the enemy; that her current contribution, important though it was, was conditioned on equipment and supplies furnished by her allies; that the three nations which had made the great sacrifice and had come out of the struggle with powerful military establishments, must assume the major responsibility in laying the groundwork for peace. It was agreed, however, that France would be invited to participate in the occupation of Germany, but that her territorial claims would have to await the peace conference. The French chief of state refused to accept President Roosevelt's invitation for a conference in North Africa, following the Yalta Conference.

Occupation of Germany.—The differences that developed regarding occupation had to do mainly with French claims and with the question of whether the zones occupied respectively by the victorious powers would be administered independently or under a joint, co-ordinating commission. It was determined that "the forces of the three powers will each occupy a separate zone of Germany"; that "administration and control" would be standardized "through a central control commission . . . of the three powers with headquarters in Berlin"; and further, "that France will be invited . . . , if she so desires, to take over a zone of occupation, and to participate as a fourth member of the control commission," the limits of each zone to be agreed upon later.

Reparations.—In approaching the subject of reparations, the principle was agreed upon that Germany should be required "to make compensation in kind to the greatest extent possible"; that the details covering her ability to pay and the form that payment should take would be worked out by a commission representing the three powers, for which provision was made.

Liberated Countries.—The chiefs of state decided to consult together and adopt a common policy of assisting liberated peoples, as well as those of former Axis satellite states, "to solve by democratic means their pressing political and economic problems." Specifically they agreed where necessary "to establish conditions of internal peace," and to form "interim governmental authorities broadly representative of all democratic elements in the population . . pledged to free elections of governments responsive to the will of the people," and to "facilitate where necessary the holding of such elections." The interpretation of these commitments by Soviet Russia and her western allies has been at variance.

Poland.—Definitive policy was announced with respect to only two countries: Poland and Yugoslavia. Following the controversy over the Curzon Line (which has been described in previous issues of The Annual), a conflict of jurisdiction arose between the so-called Lublin Committee, established in Poland under Soviet sponsorship, and the London government in exile. Both Churchill and Roosevelt had labored to reconcile the groups, but without success. Meanwhile, Churchill had indicated his acceptance of the Curzon Line, conceding Russia's claim to territory lying east of the line. Roosevelt had refused to commit himself on either side. This was the situation when the Big Three took up the problem at the Yalta Conference.

After setting forth the broad principle that liberated countries would be assisted in the establishment of truly democratic governments representing all liberal elements, the heads of the three governments reached the following agreement: "The provisional government which is now functioning in Poland should therefore be reorganized on a broader democratic basis with the inclusion of democratic leaders from Poland itself and from Poles abroad." It was further agreed that the "eastern frontier of Poland would follow the Curzon Line" with certain digressions specified. At the same time, it was declared, "Poland must receive substantial territory in the north and west" to compensate for the territory allocated to Russia, "final determination" to await the peace conference.

After prolonged negotiations in which Harry Hopkins, representing President Truman, participated, it was announced June 23, 1945 that a Polish national government, consistent with the Yalta Declaration, had been constituted. London and Washington promptly withdrew recognition from the London group, and extended it to the new government.

Yugoslavia.—The long-standing controversy between Marshal Tito, chief of the partisans, and the London government in exile, had reached an acute stage. Tito had broken with the latter which stood for the restoration of King Peter to the throne. The Big Three, after preliminary negotiations with both factions, adopted a formula calling for a coalition government with Tito, as prime minister, and Ivan Subasitch (head of Peter's cabinet), as foreign minister. The plan called for waiving the question of the monarchy until after liberation, and the determination of the form of government that would emerge by a "free and democratic" election. Both parties agreed to these proposals. The sequel is that Dr. Subasitch presented his formal resignation some weeks before Nov. 11, 1945, the date set for the election, alleging that Tito was using his control of the army and police forces to predetermine the results of the election.

Veto Rights.—It was agreed at Yalta that the Big Five should determine whether force would be used to prevent aggression, or threat of aggression, in any case that might arise. The concurring votes of all permanent members of the Security Council to be set up at San Francisco, would be necessary before positive action could be taken. Hence any one of the Big Five (Great Britain, the United States, Russia, China, and France), merely by declining to vote, could block action. Britain alone of the Big Three expressed her willingness to remove the veto right from the Yalta Declaration. While there was much editorial criticism in the United States of Moscow's insistence on the veto power, little attention was given to the fact that Roosevelt first proposed it because he knew Senate ratification would be difficult, if not impossible to obtain, without the reservation.

Voting Rights in Assembly.—Churchill and Roosevelt agreed to support Stalin's request for three votes in the General Assembly of the United Nations Organization, the two extra votes being claimed for the two Soviet Socialist republics—the Ukraine and White Russia (Belorussia). Apparently this concession was granted to meet, at least nominally, claims by Stalin that Britain and the United States enjoyed spheres of influence in the British Empire, western Europe, and Latin America, that would insure them preponderance in the assembly.

Mexico City Conference—Chapultepec Declaration

When the Argentine Army seized control of the government of Argentina in 1942, a military dictatorship, of alleged Fascist persuasion, was established. The United States, certain South American countries, England, France, Canada, and Holland, promptly withdrew diplomatic recognition. Washington made specific charges of collaboration with the enemy against the new regime, and applied economic sanctions.

On Oct. 27, 1944, Argentina, facing political and economic isolation, filed formal request with the board of governors of the Pan American Union for a hearing to give her an opportunity to prove that her foreign policy was consistent with the commitments assumed at the Rio de Janeiro conference early in 1942. The appeal was answered by a motion deferring action indefinitely. Argentina then severed diplomatic relations with the Axis powers, announced sweeping restrictions to eliminate Fascist influence, and again pressed for a meeting of the foreign ministers. Meanwhile, evidence was coming through that Argentina was feverishly building up her military establishment. Other Latin American states, fearing aggression, joined in petitions for the meeting. The board of governors relented and sent out the call in January 1945 for a conference in Mexico City, but the invitation was transmitted only to members who had signed the Declaration of the United Nations. This excluded Argentina.

The conference, held February 21 to March 8, passed a resolution stating the conditions under which Argentina might regain recognition and become eligible for membership in the United Nations coalition: She must co-operate "in the common struggle" against the Axis, sign the so-called Chapultepec Declaration pledging solidarity, and declare war on the Axis powers. There was no requirement that the military dictatorship be dissolved, but there was clear implication that signature committed the country to a democratic regime. The declaration of war was forthcoming March 27; signature to the articles, April 4. Diplomatic recognition by the above-named countries followed April 9. Evidence is not reassuring that Argentina's commitments are being complied with.

The remaining issue at the Mexican conference, that possessed important political implications, had to do with the relation of the Pan American pacts to the proposed world organization for the maintenance of peace. Led by Colombia, Brazil, and Uruguay, there was strong demand among the Latin American states for a binding agreement for collective military action, if necessary, to ensure the political independence and the territorial integrity of the members of the union. The United States had previously insisted on a united front against the aggressor. Hemisphere solidarity had been the slogan. Now the United Nations Conference was scheduled to meet in San Francisco April 25, 1945, to draft a world charter to preserve the peace. The United States delegation, mindful of the complications that would arise if the Western Hemisphere should attempt to conclude an unconditional military pact, insisted on amending the proposal. As approved, the resolution authorized "a regional arrangement for dealing with matters relating to the maintenance of international peace and security as are appropriate for regional action in the Western Hemisphere," provided the "activities and procedures referred

to therein shall be consistent with the purposes and principles of the general international organization when formed." (See also INTER-AMERICAN AFFAIRS.)

UNITED NATIONS CONFERENCE—SAN FRANCISCO

The Dumbarton Oaks agreement laid down the broad principles of an organization to preserve world peace (see THE ANNUAL, 1945). The San Francisco Conference (April 25–June 26) had the task of implementing these principles into an effective organization clothed with authority and power to prevent, or stop, aggression. The discussion to follow deals only with those features of the United Nations Charter that gave rise to controversy among the delegates. (See under UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION for complete review of the charter.)

In addition to differences on questions directly pertinent to the conference, the assembly of delegates, representing all the members of the United Nations, provided a sounding board that furnished leaders an unparalleled opportunity to propound their views on controversial subjects that not infrequently had little to do with the purposes of the conference. It was a veritable field day for press and radio. Many of the representatives of these agencies disclosed a naiveté about the whole proceedings, even the purpose of the conference, that led them to advise the public that nothing worthwhile was being accomplished. They might be referring to the divergence of opinion on the government of Poland, or on what should be done with the Dardanelles—questions with which the conference had nothing to do.

The controversial questions upon which decisions were reached, were as follows: chairmanship; voting rights; admissions: Argentina; Poland; veto rights: small vs. great powers; trusteeships; regional pacts and the World Charter; International Court: question of jurisdiction.

Chairmanship.—In international conferences, the head of the delegation of the country acting as host is frequently named by acclamation as permanent chairman. Soviet Foreign Commissar Molotov objected, demanded rotation among the United States, the USSR, the United Kingdom, and China; and it was so ordered. The significance of the issue was overplayed. The rotation plan served a useful purpose. It gave the delegates an opportunity to appraise the foreign ministers as persons and as officials of the ranking states; made each conscious of a personal responsibility to make the conference a success; gave each an occasion to render decisions and view issues from a broader perspective than that which ordinarily characterizes delegates demanding, or opposing, something. No objection was made to retaining United States Secretary of State Stettinius as permanent chairman of the steering committee.

Voting Rights: USSR.—At the Yalta Conference, President Roosevelt and Prime Minister Churchill had agreed to support Premier Stalin's request for separate votes for the Ukraine and White Russia. The Soviet leader assumed that the United States would usually be able to command the votes of the 20 Latin American states, probably the 7 Arab states, the Philippines, Liberia, and perhaps several countries in Europe; and the United Kingdom would be able to command the Dominions, western Europe, Turkey, Greece, Italy, and Egypt. The most Soviet Russia could count on, under present conditions, would probably be Finland, Poland, Czechoslovakia, Rumania, Bulgaria, Hungary, and Yugoslavia.

Moscow's insistence on a total of three votes for the USSR could not offset the overwhelming advantage enjoyed by the United States and Britain. The minority position in which Soviet Russia found herself on many questions perhaps has not a little to do with her efforts to project her influence over the tier of states extending from Finland to the Adriatic.

Admissions: Argentina, Poland.—The Latin American states, strongly supporting the admission of Argentina to the conference, demanded such admission as their price for conceding three votes to Russia in the General Assembly. Molotov retorted by expressing his consent to the admission of Argentina if the Lublin government of Poland were admitted. As the conference was speeding on to a vote on the admission of Argentina, the head of the Russian delegation asked for postponement of the vote in order to give him an opportunity to confer with his delegation. The request was denied. The vote was taken, and Argentina admitted. Nothing daunted, Molotov then asked that the admission of Argentina be deferred until the Lublin Committee, recognized by Moscow as the provisional government of Poland, could be admitted. Again, he failed to carry his point. British Foreign Minister Eden and Secretary of State Stettinius adhered rigidly to the commitments made at Yalta, namely, that the Polish government would be recognized and admitted to the San Francisco conference as soon as Poland had reconstituted her government so that it would be truly representative of the liberal elements in Poland and outside.

While the USSR failed to prevent the admission of Argentina, and was thwarted in her effort to bring about the admission of Poland's Lublin group, she nevertheless succeeded in gaining the additional votes in the assembly for the Ukraine and White Russia.

Veto Rights: Small vs. Great Powers.—The Dumbarton Oaks agreement went no further than to adopt broad principles, subject to the approval of the governments there represented, for a plan of collaboration among the United Nations for the preservation of world peace. On the delicate question of veto rights of members of the Security Council (the body which was to determine what constituted aggression and what action, if any, should be taken), the conferees at Dumbarton Oaks came to no agreement.

The veto issue is bound up with the comparative influence of the great and the small powers in the Security Council. The membership of the council lies in two categories: permanent and elected. The Big Five—China, France, Britain, Soviet Russia and the United States—are permanent members. Six elected members are to be chosen by the General Assembly for two-year terms. All members of the United Nations Charter agree to supply men and armaments, consistent with their commitments, called for by the Security Council. However, their total commitments are incomparably less than those of the three great powers. In the light of this fact, the foreign ministers of the latter insisted that authority to act or refuse to act must reside in those nations whose power is essential to prevent aggression. Molotov said it was the responsibility of the great powers, who had made the sacrifice, to assume full responsibility for peace in the postwar period; that they

alone could support their position with the power necessary to make it effective. It is probable that Molotov would have approved a military alliance, composed of the USSR, the United States, and the United Kingdom, to maintain world peace.

The United States was insistent on the necessity of a world organization, but was not willing to be placed in a position where other nations, large or small, could dictate her course of action. She was therefore equally insistent at San Francisco, as she was at Yalta, that no action could be taken against an aggressor without the unanimous vote of the permanent members of the council, each member reserving the right to withhold his vote. Anthony Eden, British foreign secretary, supported this view although in a more restrained manner than that disclosed in the statements of Molotov and Stettinius.

Foreign Minister Herbert Evatt, of Australia, seconded by ministers from Canada, China, and some of the smaller states, led the protest against any effort on the part of the great powers to dominate the policy of the world organization. Canada won an important concession that was written into the charter, namely, that any member of the United Nations, whether member of the Security Council or not, should nevertheless have a vote in the council when such nation is to be called upon to supply forces to be used as the council may direct.

The conclusion of the heated discussion over the veto right was the retention in the charter of the provisions set forth in the Yalta Declaration, namely, that the unanimous approval of the permanent members is necessary before the machinery at the disposal of the council can be invoked to stop actual, or threatened, aggression. Hence one permanent member, whether involved in the dispute or not, may exercise an effective veto upon the intervention of the council.

Foreign Commissar Molotov undertook to expand the above provision by an amendment designed to extend the veto right to decisions on whether or not a given subject should be discussed by the council. The amendment was voted down, and the question placed in the category of "procedures" which require only an affirmative vote of any 7 of the 11 members.

Trusteeships.—Following the First World War, the overseas possessions of Germany and Turkey were distributed among the victorious powers (not including the United States) in accordance with the conditions prescribed in the Covenant of the League of Nations. The territories were said to be mandated to the powers as agents of the League of Nations and responsible for their administration. This device was used because the Allied and associated powers had repeatedly declared that they had no territorial ambitions. The mandatory powers were responsible to the Permanent Mandates Commission of the League of Nations. The mandates were described as a "sacred trust of civilization." The powers designated as trustees were to "derive no benefit from the trusteeship" which was to be administered primarily in the interest of the mandated territories. While some of the mandates were conscientiously administered, it may be said that the League of Nations proved quite impotent to enforce the standards of administration established in the covenant. On the whole, the territories were administered as a colony would be administered.

The object of trusteeships, as stated in the United Nations Charter adopted at San Francisco, was "to promote the political, economic, social, and educational advancements of the inhabitants of the trust territories, and their progressive development toward self-government or independence as may be appropriate to the particular circumstances of each territory and its people and the freely expressed will of the people concerned."

There was sharp difference of opinion among the delegates, the Soviet Union and China insisting on the omission of the word self-government in the above statement, leaving it, "their progressive development toward independence" for all dependent peoples whether administered under trusteeships or otherwise. The United States and Britain favored the entire omission of the word *independence.* The compromise as finally adopted left the alternatives indicated in the paragraph above in the section referring particularly to trust territories, using *self-government* only in the general declaration applying to all dependent territories. The original proposals of Britain and the United States did not provide for Soviet participation in the determination and adjustment of trusteeship problems. Molotov insisted that all the victorious powers should have a part in decisions affecting the procedures that should apply, and it was so ordered.

The United States delegation went on record as favoring the independence of all colonies as soon as practicable, but did not press the point. The position was untenable because, at the same time, the United States had strongly asserted its right and intention to take such Japanese islands as it considered strategically necessary. The other major powers have likewise been insistent on holding what they have, and participating to the maximum in such distribution of enemy territory as may be made.

Regional Pacts and the World Charter.—The United Nations were scarcely prepared to substitute a world organization to preserve the peace for the system of regional and bilateral security pacts that had evolved through the years, and which, in a sense, had come to replace old balance-of-power concepts. However, the conference at Mexico City had gone on record in favor of collective action in the Western Hemisphere, subject to the proviso that any arrangements must be "consistent with the purposes and principles of the general international organization . . ."

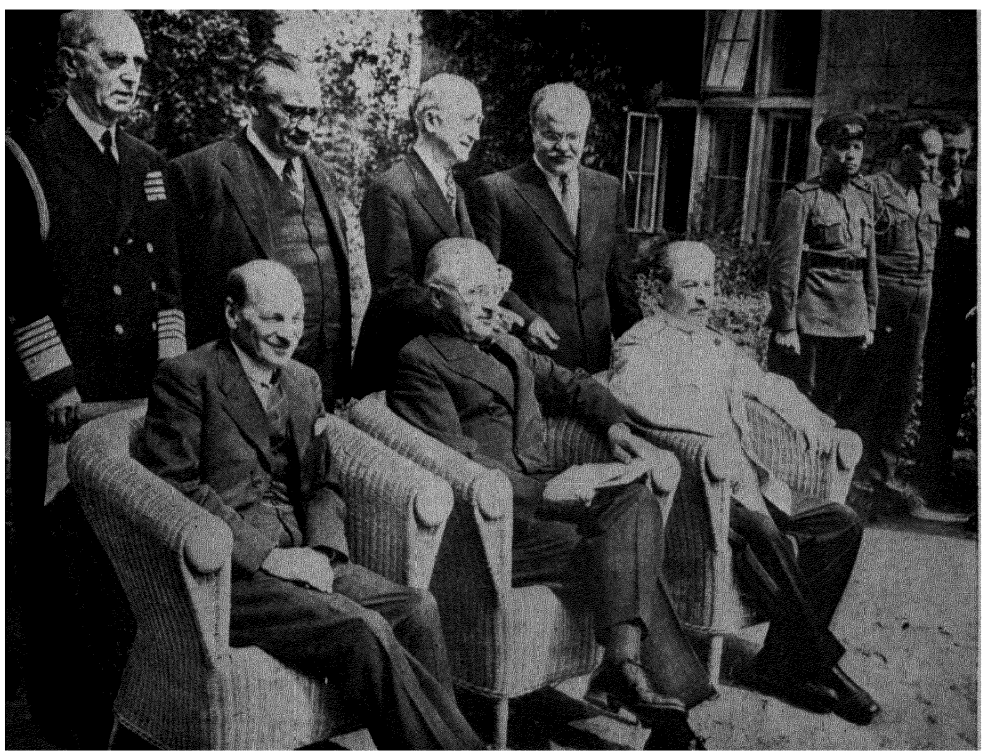
In the European theater, it had been assumed that the proposed world organization would permit, within its framework, bilateral and regional pacts. At the time France made her treaty with the USSR (Dec. 10, 1944), following in general the terms of the Russo-British pact of 1942, question was raised in foreign offices as to whether this meant cleavage within the Western bloc. Both Paris and London insisted that it did not, the propriety of an Eastern bloc fathered by Russia, and a Western, by England, appearing to be implicit in the comments made on the subject. The conferees faced some delicate problems in reconciling the views of those who looked for security to regional pacts, and those who believed that the world organization should function directly and not through the instrumentality of local groups of states outside the world charter. The result was a compromise.

The charter specifically provided that regional systems, such as the Pan American Union and the Arab League (q.v.), may be used by



Signal Corps Photo from UNIO

Prime Minister Winston Churchill, President Franklin D. Roosevelt, and Premier Joseph Stalin, in the patio at the palace in Yalta, in the Crimea.



Big Three pose for photograph before their final meeting at Potsdam. *Seated:* Prime Minister Clement R. Attlee, President Harry S. Truman, and Generalissimo Joseph Stalin. *Back row:* Admiral William D. Leahy, Ernest Bevin, James Byrnes, and Vyacheslav M. Molotov.

the Security Council to meet local situations, provided that approval first be given by the council before such facilities can be applied. This reservation is not to be interpreted as restraining a group of states, or an individual state, from defending itself if armed attack occurs before the forces at the command of the council can be brought to bear; however, the article cautions against using the pretext of defense to justify an act of aggression.

Where conflict of jurisdiction arises, Chapter 16, Article 103 is explicit. It states, "In the event of a conflict between the obligations of the members of the United Nations under the present Charter and their obligations under any other international agreement, their obligation under the present Charter shall prevail."

International Court: Question of Jurisdiction.—Reference is here made to the question whether the International Court of Justice, functioning as an instrumentality of the United Nations Charter, should assume jurisdiction automatically to try cases arising under a given set of circumstances to be specified in the articles of agreement. A subcommittee of jurists submitted a report recommending compulsory jurisdiction where a question arose as to the interpretation of a treaty; any conflict of opinion over international law; any controversy having to do with facts alleged to constitute a breach of an international obligation; and reparations assessed for the breach of an international obligation.

The smaller states expressed themselves as strongly in favor of compulsory jurisdiction. Britain appears to have taken no position on the question, apparently being willing to accept automatic compulsory jurisdiction. The USSR objected on principle, and the United States supported the Soviet position fearing veto by the United States Senate. As finally adopted, the resolution made compulsory jurisdiction optional, leaving the matter open for each state to file a declaration committing itself to automatic jurisdiction if it desired to do so. The action taken by the Big Three on this issue will probably be followed by the lesser powers.

Postvictory Diplomacy

The collapse of Germany in May 1945 and of Japan in August brought the military phases of the Second World War to a dramatic conclusion. The statesmen of the great world powers had failed to preserve the peace. They had taken second place while the issues at stake were resolved by war. Following victory, the statesmen of the aggressor powers were being apprehended to answer before tribunals set up by the victorious powers. The military forces stepped into the background, handing the shells of three major nations and a score of satellites and liberated countries to the statesmen of the conquering powers. The latter were now in a position, unchallenged, save by possible internal dissention, to organize the world for peace.

(The conference at Potsdam is discussed under this head because it was held when the capitulation of Japan was imminent, and because it dealt almost exclusively with postvictory problems of a political character. The atmosphere of victory was accentuated by the knowledge of Russia's early entry into the Pacific war, and the demonstrated potency of the atomic bomb; and also by Japan's semiofficial and official overtures for peace even before she became aware of the portentuous events scheduled to occur in the days immediately ahead.)

The Potsdam Conferences.—The Big Three met at Potsdam, on the outskirts of Berlin, Germany, the middle of July 1945. The communiqué announcing the accomplishments of the conference was dated August 2. One face was absent at the opening of the conference, that of Franklin D. Roosevelt. His chair was occupied by Harry S. Truman, who had succeeded to the presidency following Mr. Roosevelt's death in April. Midway of the conference, Winston Churchill returned to London to receive returns from the election. The results brought the Labor government into power with Clement R. Attlee at its head. When the sessions of the conference were resumed, the Churchill chair was occupied by Attlee. Of the three great personalities who had guided the coalition governments since the spring of 1940, Stalin alone remained. The conference went on, with no perceptible change in the policies that had been formulated through the years to thwart the Axis bid for world supremacy.

As at Yalta, neither France nor China was invited to attend the conference. The denial of General de Gaulle's insistence that France be represented was presumably the same as that suggested as an explanation of his absence from the Yalta Conference. China's absence was attributable to the fact that the USSR and Japan were not at war—the same reason given for the absence of China from previous conferences in which Moscow participated. There was the added reason that the Russian declaration of war against Japan was destined to follow the adjournment of the conference, and it was not deemed expedient to foreshadow this action by the presence of China in the conference. Moscow had given notice (April 5) of her intention not to renew her treaty with Japan on its expiration (April 25, 1946). It is now known that Stalin had indicated his intention at the Yalta Conference, to enter the war in the Orient about three months after the capitulation of Germany; and that this intention was confirmed at the Potsdam Conference.

The communiqué given to the press, at the conclusion of the conference, dealt with the following matters: reparations; territorial adjustments; council of foreign ministers; freedom of press, elections, plebiscites; Franco's Spain.

Reparations.—The plan submitted by the Allied Commission on Reparations formed the basis for discussions of the Big Three. Departures from these proposals appear to have been only in matters of detail. Profiting by the experience gained in attempting to collect cash reparations following the First World War, it was determined that reparations would be limited to the confiscation of goods and industrial capital equipment that formed the backbone of Germany's military potential, together with so-called excess equipment not essential to Germany's maintenance of a standard of living not higher than that enjoyed in neighboring states.

Specifically, each of the occupying countries was authorized to draw its reparations from the zone which it occupied in accordance with the above principle. However, in addition to drafts made upon its own zone of occupation, Russia would be permitted to collect the equivalent of 25 per cent of industrial equipment, classified as removable, from the zones in Germany occupied by the United States, Britain, and France. Two fifths of this amount would be in the nature of reparations accredited to Russia; but the remaining three fifths would be handed over to

the Soviets by the occupying forces in exchange for food and raw materials supplied by the former. Russia was also authorized to appropriate so-called removable goods and industrial equipment, held to represent German assets in satellite countries, the Western allies specifically renouncing their claims against such assets. In return, Russia renounced all claims to any part of the caches of gold (estimated unofficially at $1,000,000,000) confiscated by the Allied powers in Germany. Russia also renounced all claims to any German foreign assets whether in Italy or any other country. It was further agreed that reparations to be paid to Poland should come out of Russia's share as described above.

The details covering the distribution of reparations among the victorious powers were to be determined by the Allied Commission on Reparations, and the Allied Control Council to be set up in Berlin to co-ordinate administration in the zones of occupation. It is of course obvious that the terms agreed upon at Potsdam raise the question not only of the equity of the distribution, but also the more important question of classifying goods and industrial equipment into "removable" or "excess" on the one hand, and essential to maintaining the agreed-upon standard of living for the German people on the other. Of immediate interest, the following questions are raised in current dispatches: (1) as to whether the occupying countries, or any of them, are taking their reparations in anticipation of definitive findings of those boards and commissions that are working on the complicated problem of the reorganization of the economic structure of Germany to prevent the revival of her wartime industries, but to permit her to sustain her population on the agreed-upon standard; and (2) whether Russia is projecting the authority to appropriate German assets in the satellite countries (Bulgaria, Hungary, Rumania, Eastern Austria, and Finland) to Poland and Czechoslovakia, and if so, as to whether a distinction is being observed between German investments and those owned by the nationals of these members of the Allied coalition. These charges are being made but it would be premature to accept them until they are verified.

Territorial Adjustments.—The following territorial adjustments were tentatively agreed upon, the same to be subject to determination in the peace settlements to be recommended by the Council of Foreign Ministers and finally approved by the governments of the victorious powers. The Yalta agreement to allocate that part of prewar Poland lying generally east of the Curzon Line was confirmed. In compensation therefore, the conferees agreed to permit Poland to occupy and administer that portion of Germany lying east of the Oder and Neisse rivers. This includes Silesia and a considerable portion of Pomerania. The Free City of Danzig, with a stretch of coastline on either side, and a portion of East Prussia, were placed in the same category. The balance of East Prussia, including Königsberg, was assigned to the Soviet Union.

In addition to the above dispositions of disputed territory, it appears that Ruthenia (q.v.), assigned to Czechoslovakia at the Treaty of Versailles, although not requested by the emerging Czech government because its population was predominantly Russian, has been returned to Russia by direct negotiations without plebiscite or intervention by the Western powers; that Teschen, the important mining area taken from Czechoslovakia by Poland following the Munich Pact, is still occupied in part by troops of the Red Army, contrary to the announced agreement between Moscow and the Beneš government that the former would not support Poland in the retention of this territory.

The Council of Foreign Ministers. — Both France and China were invited to sign the Potsdam declarations and become parties to the implementation of its principles in the peace treaties. A council of the five foreign ministers of the Big Five was established and assigned the immediate task of formulating terms of peace for Finland, Italy, Rumania, Bulgaria, and Hungary. Reports indicate sharp differences of opinion about the expansion of the Big Three to the council of five as constituted, Stalin taking the position that the remoteness of China from the European scene disqualified her to participate in decisions affecting dispositions in Europe; and that the inclusion of France gave the Western powers preponderance in the determination of policies toward eastern Europe which was primarily of concern to Russia. For the present, he conceded the five-minister conference although it was destined to be brought up as a major issue at the opening conference in London (see below).

Freedom of Press and Elections.—After extended argument in which President Truman and Prime Minister Attlee insisted on free press and elections, it was agreed that the "Allied press shall enjoy full freedom to report to the world upon developments in Poland both before and during the elections," the same assurances being extended with regard to Finland, Bulgaria, Rumania, and Hungary. Likewise, there was agreement on "free and unfettered" elections in the aforesaid countries, that truly democratic governments should be established, and all traces of fascism and nazism eliminated. (It would appear that the term "democracy," which has been frequently used in the declarations of the Allied powers from the adoption of the Atlantic Charter, means different things to different members of the coalition. There is no evidence that the latter have attempted to define it. However, it would appear that the Soviet Union has in mind economic democracy, whereas the Western powers are thinking in terms of political democracy.)

Franco's Spain.—The Potsdam Declaration, consistent with the action taken by the delegates at the San Francisco Conference, went on record against the admission to the United Nations of any state "founded with the support of the Axis powers." There was no effort made to conceal the fact that reference was to Fascist Spain.

Following the capitulation of Germany, among other overtures made by Franco to the Allied powers was his suggestion to London, June 12, 1945, that he was prepared to negotiate the return of Tangier (in North Africa, vis-à-vis Gibraltar) to the international status pertaining before the war. Franco had repudiated this status when German arms were victorious on all fronts, and Spanish troops had occupied the area. Britain and France set July 3 for the conference but postponed it on protest from Moscow that she would insist on participation. Although France indicated her objection to the admission of Russia, the conference took place on August 31, attended by representatives of Britain, the USSR, and France. Meanwhile, under pressure from London and Paris, Franco had withdrawn Spanish troops from Tangier. The final agreement (announced September 4), subject to some

modification in detail to be worked out by a committee of experts representing France, Britain, and Russia, left actual administration in the hands of Belgium, Netherlands, Portugal, and Sweden, in accordance with the procedure prevailing at the time of Franco's assumption of authority. However, the administration of the territory was to be subject to a control committee composed of the United States, Britain, the USSR, France, and Spain, the last-named country having reduced representation in the legislative assembly of the territory. The four countries responsible for actual administration were given authority to expel from the zone any individuals whose presence was considered inconsistent with the status of an international zone.

The London Conference.—The Council of Foreign Ministers met in London Sept. 11–Oct. 2, 1945, to begin the work of drafting peace terms to apply to all the conquered countries except Germany and Japan, and to make a disposition of numerous problems that had risen with respect to the conquered and liberated countries. Many of these problems had been attacked in conferences at Moscow, Teheran, Yalta, and more recently at Potsdam, but they had not been solved. Now that the compelling exigencies of war had passed, these problems, involving national interests in the postwar period, had to be met as a condition precedent to the drafting of peace treaties with the conquered countries. It was here that national interests forged to the front. As a result, all the members, operating under instructions from their respective governments, found themselves unable to reconcile their differences, and adjourned, leaving to their chiefs the task of agreeing upon a directive to guide them in subsequent meetings.

The agreement at Potsdam directed the foreign ministers to draft treaty proposals, for submission to their governments, with Italy and the ex-satellite countries of Europe. The agreement stated that the Allied signatories to the articles of surrender would invite other United Nations members to participate when matters of direct concern to them were under discussion. When the conferees met, it appears that this directive was interpreted as meaning that members of the council who were not signatories, might participate in the discussions of the terms to apply to a country under consideration, but could not vote. With this understanding, France and China remained in session with the other members of the council and participated in the discussions during the first days of the conference.

As the viewpoints of the several members were expressed, it became apparent that the Soviet delegation found itself in a minority of 1 to 4 on most questions relating to the Balkans, the disposition of Italian colonies, and the control and administration of Japan. Foreign Commissar Molotov, on advices from Moscow, then demanded that France and China be excluded from the discussions of treaties with the European states on the ground that they were not signatories to the articles of surrender. He held this to be consistent with a literal interpretation of the Potsdam Declaration. France insisted vehemently that she had vital interest in all European adjustments; that she was not a party to the Big Three agreement limiting participation to signatories, and would not be bound by it. China apparently remained neutral.

British Foreign Secretary Ernest Bevin, and United States Secretary of State James F. Byrnes, after spending several days in an effort to bring Molotov to their viewpoint that France and China should participate in discussions on the above treaties but should not vote, referred the issue to their respective governments. Molotov did likewise. The three governments respectively supported the positions taken by the foreign ministers. Byrnes then proposed a compromise, namely, that the Big Three should continue conversations of an exploratory character without the presence of the two powers to which Moscow objected; that they would make their report to a representative peace conference to include representatives of all European members of the United Nations of Europe, and others who had contributed substantial military contingents to the prosecution of the war. Molotov replied that he could not agree, holding that the Potsdam directive did not contemplate the participation of other countries in dispositions affecting the Danubian states. At this juncture the conference adjourned, deputies remaining in London to work on such problems as could be considered, pending agreement, among the Big Three governments on matters of principle that must be settled before the foreign ministers can proceed.

Following the conference, Bevin made his statement to the House of Commons; Byrnes broadcast to the American people; *Pravda* stated the viewpoint expressed by Molotov at the conference. All three gave conferences to the press in London. The difference over the interpretation of the Potsdam agreement was given by all as the reason for adjournment without substantial accomplishments. Yet both Bevin and Byrnes had agreed that the Big Three alone would vote on the treaties. Statements made by the Big Three indicate that the cleavage was due to far more fundamental reasons than that to which adjournment was immediately attributed. Without attempting to evaluate the merits of the conflicting viewpoints taken by the Big Three, we may conclude the discussion of the London conference by setting off in juxtaposition the attitudes of the foreign ministers as set forth in the conference.

Following the Potsdam directive, the Italian treaty was first discussed, the Italo-Yugoslavian boundary question coming into the picture. The United States, with British approval, proposed that all Italian colonies be placed under a trusteeship to be administered by a commission of the United Nations Organization as a whole. The USSR objected, asserting her right to a base in Eritrea on the Red Sea, and her participation in a trusteeship of Libya. With regard to Trieste and adjacent territory on the Adriatic, Byrnes and Bevin proposed that the issue, whether this area should be allocated to Yugoslavia or Italy, should be determined on the basis of ethnographical considerations, the port of Trieste itself to be internationalized. Molotov objected, presumably desiring both the shore line and the port to go to Yugoslavia.

Regarding the Dodecanese Islands, inhabited largely by Greeks, the foreign ministers of the Western powers proposed that they be returned to Greece. The Soviet's foreign commissar proposed that they be internationalized. Britain was interested in the control of the islands by a friendly power since they dominated the eastern Mediterranean lifeline. The USSR was interested in having a part in their administration because they dominated approaches to the Dardanelles, her only year-round waterway to the ocean highways. Molotov followed this line, reminding the delegates that the United States had already

declared her intention of taking over such strategic islands in the Pacific as she considered essential to her security.

The most acute issue of all, apparently, was the disposition to be made of the Balkan States. The Western powers had been critical of the provisional governments set up following their capitulation to the Red Army, alleging that these governments were dictated from Moscow. This applied especially to the regimes in Rumania, Bulgaria, and Hungary. Before this question was opened up, Molotov seized the initiative, charging the provisional government in Greece, set up under British auspices, with being undemocratic. Byrnes, with Bevin's support then declared that the elections pending in the three countries could not be free elections under the conditions existing, and the governments resulting therefrom could not be recognized.

In the discussion of the Danubian states, Molotov made it clear that the Soviet Union simply insisted on friendly powers at Russia's back door. He reminded the other ministers that Russia had been invaded twice in a generation from the west; also that Britain insisted on friendly powers along her lifeline to the Orient; the United States, in South America. The Western powers insisted on the internationalization of the Danube. Russia's position was not made clear in press releases. Apparently the issue on the Dardanelles was not joined.

The occupation and control of Japan by the United States was projected into the discussion, the Soviet commissar insisting that Russian interests in the Pacific area, and the interests of other countries, would be better served by placing occupation and control under a joint commission comparable to that in Berlin. Byrnes stated that Japan was not on the agenda and he was not prepared to discuss the issue raised. A few days thereafter, the State Department in Washington announced that nine governments (the USSR, Great Britain, China, France, Holland, the Philippines, Canada, Australia, and New Zealand) would be invited to a conference to discuss the establishment of a Far Eastern advisory commission. It was stated that the commission would be precluded from making recommendations regarding the conduct of military operations and territorial adjustments. Molotov had already written to Byrnes declaring Russia would not participate in an advisory capacity, and proposing a control commission composed of representatives of the United States, the USSR, Great Britain, and China, the first-named to be permanent chairman.

Space does not permit an evaluation of the above controversy. It was the first meeting of the foreign ministers after victory. It was a meeting the function of which was to start the political and territorial reconstruction of Europe. Following the last war, the victorious powers were in reached. It might have been better had they resession nine months before conclusions were mained longer. The London conference was in session three weeks. The free-for-all wrangle was disconcerting but not fatal since the meeting was simply adjourned, with commitments to resume. Meanwhile, there are evidences that preparations are now being made through diplomatic channels to resume conversations. It will be necessary to make progress at the next session. Perhaps it may have to be preceded by another meeting of the Big Three to settle certain matters of fundamental principle. Meanwhile, press dispatches indicate that the United States and Britain are even now prepared to make certain concessions in the Balkan situation. Perhaps the United States may find it impracticable to create democracies in the area patterned after its own, or to interpose effective restraints against the projection of Soviet influence in the area.

China.—Diplomatic relations during the year between the United States and China were concerned largely with efforts to keep China in the war. United States diplomatic exchanges were supplemented by strenuous activity to place at the disposal of the Kuomintang government of Chiang Kai-shek at least a modicum of essential war materials, airpower, and training in modern warfare, to hold together the forces opposing Japan. Diplomatic representations took the form of pressure upon Chiang's government to make his Cabinet more liberal, more truly representative of the democratic elements in the population that were critical of the existing regime. Pressure was also exerted both upon Chungking and Yenan (the headquarters of Mao Tse-tung, leader of the Communist Party) to stop fighting each other and join forces to drive out the Japanese invader.

This is not the place to review the arduous efforts to bring about harmony between the two factions in China, or to essay any evaluation of the merits of the controversy. It is enough to say that the United States has dispatched high officials of the government—Vice President Wallace, Wendell Willkie, War Production Chief Nelson, and finally Patrick Hurley—to Chungking in an effort to compose the differences between the opposing forces. Hurley, after a preliminary survey, was made ambassador to Chungking, thus signalizing the decision of Washington to throw all its influence to the Kuomintang government. Likewise, an effort was made to see to it that none of the materials sent to China should fall into the hands of Tse-tung's armies that have for seven or eight years been in almost undisputed control of a wide area in north and central China.

Ambassador Hurley, after zealous efforts during the summer of 1945, succeeded in bringing the Communist chief to Chungking for conferences with Chiang. While from time to time encouraging reports have emanated from the conference, it is apparent, after several months of negotiating, that the differences have not been reconciled. In brief, the Communists demand immediate participation in the government, immediate land and tax reform, and a free election to determine the form of government that shall prevail. Chiang promises these things but refuses to initiate them until Tse-tung's forces lay down their arms and recognize the Chungking government. The conferences were still going on November 1, as civil war burst into flame over a wide area. The Communists are claiming United States aid to Chiang, and the latter claims that Soviet Russia is turning over to the Communists territory in Manchuria being evacuated by the Red Army. The facts cannot now be confirmed.

On June 30, Chinese Premier T. V. Soong appeared in Moscow for a conference with Marshal Stalin. A few days later, a new Chinese-Russian treaty of friendship and alliance was announced simultaneously from both capitals. The treaty commits Russia to noninterference in China's internal affairs, to assistance in the reorganization of China's economy, and to the recognition of the Kuomintang government as the only central government of the country. Gunther



General session of Foreign Ministers Council meeting in London, September 1945.



At the United Nations Conference in San Francisco, Great Britain's Foreign Secretary Anthony Eden, U.S. Secretary of State Edward R. Stettinius, Jr., Soviet Foreign Commissar Vyacheslav M. Molotov, and China's Foreign Minister T. V. Soong receive General Eisenhower's message announcing the surrender of German troops to Field Marshal Montgomery.

Stein, who has made a first-hand study of the merits of the controversy in China, writing in October *Foreign Affairs*, says that the treaty does not represent a change of policy on the part of Moscow. "The pact," he continues, "merely reaffirms the continuation of Russian policy of long standing." Less well-informed writers have taken the contrary view. A key to the dilemma in which China finds herself, after the foreign enemy has been driven out, may be indicated in Stein's further observation that "China is still in the formative period of modern nation-hood, as America was at the time of the Declaration of Independence."

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WORLD WAR, SECOND, 1945—European Theater —The Battle of the Bulge.—Late in 1944, it became obvious to the German High Command that continuance of an exclusively defensive strategy, leaving all initiative to the Allies, would inevitably lead to speedy collapse of the Wehrmacht. Mobility, a most essential factor in modern warfare, was bound to be fatally reduced by Allied bombings, as the air superiority of the Western Allies was steadily growing. The Wehrmacht was compelled to make its final bid to ward off defeat while German communications, even though badly shattered, could still keep at least a limited force rolling in the initial phases of a major battle. Since such a bid would be futile in the vast spaces of the East and of little value in Italy—then a secondary theater of war—the attempt had to be made in the West. Field Marshal General Karl Rudolf Gerd von Rundstedt, Supreme Commander of the German forces on Germany's western border, launched an attack on Dec. 16, 1944, which opened the fateful "battle of the bulge" against the Allied front in Belgium and Luxembourg. Rundstedt chose the invasion route into France which the German armies had previously followed successfully in 1870, 1914, and 1940.

The Germans hoped, as a maximum objective, to pierce the Allied lines completely, thus splitting the western front into two tenuous and isolated holds in northern and southern France, and, by capturing the main Allied supply base of Antwerp, to force the precarious evacuation, if not the capitulation, of all Allied forces north of the penetration. If the Germans succeeded in this, they planned another move to drive the southern group of Allied forces out of France. In this way, the "second front" would be wiped out and the Soviet Union, exhausted and facing the full power of the German Army, would be compelled to accept peace terms.

A second and more realistic hope was based on the premise that the Allied armies would be forced to fall back as far as the Seine River in the north if the conquest of Belgium and the penetration of the Sedan gap severed their north-south communications east of Paris. The German High Command confidently believed that this could be done. On the line of the Seine—with most of the French Atlantic and channel ports still controlled by by-passed German garrisons—the Allied Expeditionary Forces would be short of supplies, would lose many favorable advanced airbases, and would have even less initiative than the Wehrmacht had had in the summer of 1944. In these circumstances, a small German force should be able to hold the Allies in check in the west, while large reinforcements could be poured into the eastern front—so large that the Russians, with very extended communication lines, would not be able to launch a major drive. Even if this hope failed to materialize, the Germans were almost sure that the Allies would at least be thrown badly off balance, disrupting their offensive preparations and giving Germany an opportunity to reinforce the eastern front and gain a long breathing spell.

With 87 types of V weapons being developed —among them a German version of atomic destruction—the German generals hoped to regain the superiority of equipment that had characterized the early victories of the Wehrmacht. Meanwhile German politicians, watching signs of friction between Russia and the Western Allies, predicted that an open rift would be hastened by Allied setbacks in the west. The Germans knew that the Allied Expeditionary Forces had to cope with major supply problems and that a serious shortage had developed in certain items, such as aerial bombs and artillery shells, but they seriously underestimated Allied ability to solve these problems. Furthermore, the German High Command believed that the Allied Supreme Command, with a large part of its forces poised for attack in some sectors and thinly spread in others, including the critical one, would be unable to regroup soon enough to stem the German tide before it surged beyond Liege and Dinant and toward Antwerp. Bad weather reduced the threat of Allied air power, while snow and mud gave German armor, with its wider caterpillar treads, an advantage over some Allied types.

The offensive was, of course, a gamble. If the clouds should break, enabling the Allied air force to function freely, the odds would change against Germany. Moreover, if the German victory did not materialize fully within a few weeks, the Wehrmacht's communication troubles would prevent exploitation of primary successes. The strain on German manpower (permanent casualties—dead, crippled, and prisoners—had run far above four million since the outbreak of the war) limited the number of divisions available for the push to about 20 in the first line and about half that many as a mobile reserve—far less than the force used in 1940. If the German drive were to fail, the flower of the Wehrmacht in the west would be sacrificed in vain, the road to the Rhine would be open, and final defeat would be hastened by many months. The gamble did fail, due to the tenacity of American and British forces and the swift and alert reaction of the Allied Command.

On December 25, after initial successes, the main German drive was halted at Celle, three miles from Dinant, while the southern flank of the German bulge was under counterattack at Morlange, north of Arlon, on December 23. On December 28, the Third Army brought relief to the hard-pressed defenders of the vital road center of Bastogne. The Allied air force meanwhile, with a break in the weather, rained devastating blows at the German front and rear, flying 4,000 sorties on December 26 and 3,000 the next day. Even during the heaviest overcast, some support was given to hard-pressed ground troops by the use of radar. The German bulge, 51 miles deep and 40 miles wide at its base at high tide, shrank in early January 1945. Allied countermeasures were carried out in three phases: containing the attack, redeployment of available forces, and counterblows designed to destroy most of the German armies within the narrowing bulge if the Germans failed to recognize their failure and retreat before the Allies could build up enough strength to squeeze them into confusion.

In the initial phase, the United States Ninth Army and parts of the First Army, north of the bulge, were temporarily removed from General Omar Bradley's Twelfth Army Group and placed under the command of Field Marshal Sir Bernard Montgomery, head of the Twenty-first Army Group (Canadian First and British Second Army) to protect the approaches to Antwerp and restore north-south communications, some of which were already cut or threatened, so that reserves had to make delaying detours. With the other part of the badly battered First Army and the intact Third Army, General Bradley undertook to contain and press back the bulge.

Regrouping for counterattack, despite sleet, mud, and swollen streams, progressed with remarkable speed. The Germans rapidly lost the initiative. The Wehrmacht's fuel supplies were adequate only for the initial push. Thereafter, Rundstedt had to rely upon the capture of Allied stores to keep his panzers rolling. His forces were turned back only a few hundred yards from a store of millions of gallons of gasoline. In the third week of the battle, the German tanks ran dry. Major strategic objectives became less important than gasoline dumps. This fact doomed the German offensive. Montgomery's and Bradley's groups, originally about 20 miles apart on the western end of the bulge, moved closer together. American heroism at Bastogne paid high dividends. On January 6, after beating back 14 German counterattacks within 48 hours, the Allied counteroffensive was well under way, reducing the distance between the northern and southern army groups to 11 miles. German casualties were conservatively estimated at 60,000.

While the battle of the bulge turned in favor of the Allies, another less dangerous German threat developed in the south, where Wehrmacht divisions, breaking out of the Saar region, advanced more than 15 miles into Alsace. This seemed to be a part of a far-reaching German plan to press parts of the AEF back toward the south and attempt to force the Allied command to switch reinforcements to the threatened sector, thus relieving the growing pressure on the bulge. It failed because the Allied Command chose to lose some Alsatian territory rather than loosen its promising grip on Rundstedt's hemmed-in divisions.

On January 13, the Allied counteroffensive gained momentum. Gen. George Patton's Third Army eliminated the remainder of a German wedge between Bastogne and Wiltz. Houffalize was captured, while the British 6th Airborne Division advanced 10 miles on the western end of the bulge. Four weeks after Rundstedt's drive began, the bulge was reduced to 30 miles in depth. The northern and southern Allied army groups were less than 8 miles apart. Compressed into a narrowing sector, the only remaining German hope was to salvage as many of their forces as possible. On January 21, their losses had risen to more than 150,000. The attacks in Alsace, meeting fierce resistance from Lt. Gen. Alexander M. Patch's Seventh United States Army and Maj. Gen. Jean Delattre de Tassigny's First French Army, bogged down after threatening Strasbourg.

By January 21, Allied losses were reported to total 55,421, including 18,418 prisoners, a small number of whom were murdered by their German captors. The bulge was soon deflated. The Allies had lost two million tons of supplies from a depot containing seven millions to the attacking Germans. But despite such difficulties, supplies poured to the front. The tide turned decisively. The only recourse left to the Germans was to attempt to delay an all-out Allied offensive by keeping their supply lines under fire by V-1s and V-2s. Liége and Antwerp were relatively harder hit by the flying bombs than London. German garrisons in French ports were ordered to hold out at all costs and to conduct extensive raids whenever possible. Allied transportation, however, succeeded in overcoming the greatest obstacles. The performance of the longshoremen in Antwerp harbor contributed as much to victory as that of the most daring airmen and tank crews. Even the German hope of delaying the Allied offensive soon vanished.

By the end of January, more than two million men stood ready to attack the Reich itself, with the French First Army, reinforced by two United States divisions, completing the successful readjustment of the Allied lines in Alsace. The Germans, after losing almost 200,000 men, were compelled to weaken their lines still more by transferring some crack divisions to the east and replacing them with poorly trained and equipped Volksstürmers.

Russian Avalanche.—During the critical days of the battle of the bulge, the Russian armies confined their activity to the Hungarian sector, fighting inside Budapest in a block-by-block struggle. This caused some discontent and criticism in the United States, where the call for Russian relief attacks in the vital Polish sector was almost as urgent as the Russian request for a second front had been earlier in the war. The Red Army, in the meantime, completed its preparations for an all-out offensive. After a five-month stalemate north of the Carpathian range, armies numbering at least three million men were poised for attack. In the north, facing East Prussia, the Third White Russian Army under General Ivan Cherniakovsky and the Second White Russian Army under Marshal Konstantin Rokossovsky threatened the remaining German hold on the Baltic coast outside the Reich as well as East Prussia. Marshal Grigori (Georgi) Zhukov's First White Russian Army was ready for an all-out assault on Warsaw, after having been repulsed there with high losses in the summer of 1944. Marshal Ivan Konev, in advanced positions on the west bank of the Vistula River to the south, had his lines drawn for a blow at the Silesian border.

Russian motor transport, despite considerable numbers of lend-lease vehicles, was hardly adequate to support a full-scale offensive, but the Red Army improvised successfully. Horse-drawn wagons, carts, and even old-fashioned droshkys of pre-bolshevist times were drafted for the occasion. Anything with wheels served as transportation. Disregarding old rules of strategy, the Red Army, even after deciding to dig in along river lines, established and held bridgeheads on the enemy bank, often at a high cost. Russian strategists correctly deduced that these losses would be more than offset by the saving of lives when the offensive was renewed with the enemy outflanked from the start. Exploiting earlier experiences, the Russian General Staff replaced the "single breakthrough" by one strong spearhead with the "multiple break-through" by a number of parallel pushes, even though each of them had less power than a single main assault. The assumption was that, once momentum was gained, these parallel pushes would pound the whole length of the enemy line into a chaos of disconnected islands of resistance, unable to support one another or to co-ordinate counterblows. Russian artillery was clearly superior to German. Russian tanks were

reinforced by the giant Josef Stalin Super, equipped with a 122 mm. gun, better than the famous German 88. The Russian air force was relatively weaker than the ground army. It served chiefly as flying artillery, neglecting targets far behind enemy lines. Some air support was expected and received from shuttle aircraft from the west.

On January 12, an earth-shaking artillery barrage paved the way for the Red assault forces. Konev's bridgehead broke loose between Sadomierz and Baranow, advancing 25 miles in the direction of Cracow on the first day. The other armies followed from the Carpathian range to the Baltic. German headquarters had been expecting this drive for a long time, but was impotent against the overwhelming impact. Parallel pushes dissolved the Wehrmacht into scattered groups. Reserves had to be rushed to the rear instead of into forward areas to save them from being engulfed by the Red tide. Within one week, Warsaw, Cracow, and Lodz fell to the Soviet armies. Konev outpaced Germany's blitzkrieg of 1939. Marshal Zhukov, after capturing Warsaw, advanced in the direction of Poznan, by-passing and encircling the city, while Rokossovsky and Cherniakovsky, after crossing the Narew River and advancing 28 miles on the first day of the battle, drove into East Prussia. One army moved toward Königsberg, while the other, by-passing the frozen Masurian Lakes, pushed toward Elbing and severed the link between the German forces in East Prussia and the beaten main armies. The German troops were so confused that they could not even attempt to undertake a flanking assault which might have hemmed in the Russian advance in the central sector, where, on January 27, the Red Army stood only 91 miles from Berlin.

In the first two weeks of their offensive, the Red armies advanced up to 200 miles, occupying 40,000 square miles of formerly German-held territory and investing the provincial capital of Breslau. Upper Silesian industries, vital to the German war effort, were about to be knocked out or neutralized.

Helpless in the crucial sectors, the Germans staged large-scale attacks in Hungary, along the Danube and southward to Lake Balaton. Although the Germans advanced about 25 miles and wrested the traffic hub of Székesfehérvár from the Red forces, these attacks had no effect whatever on the decisive events farther north and failed even to relieve the defenders of Budapest.

The Oder River, last great water barrier on the way to Berlin, already reached in its upper course by the Konev army in the second week of the lightning advance, was reached on a broad front in the following week, with Russian spearheads tackling the outer fortifications of Küstrin and Frankfurt on Oder. Pomerania and Brandenburg were invested. Russian vanguards, driving toward the Baltic port of Stettin, threatened to trap the German forces in Pomerania. Königsberg was besieged and the East Prussian pocket was compressed into a narrow space. Budapest's inner defenses were tottering.

On February 4, 1,000 Flying Fortresses battered Berlin in direct support of the Russian drive which, although still unchecked, was gradually slowing down. With a large part of the strategic German reserves assembled in haste for the defense of the capital (tanks went into action with their paint still wet), the Soviet High Command, while still exploiting its tremendous initial successes and wiping out German pockets, prepared for a halt to reorganize rear communications and gather maximum strength to knock out the Wehrmacht in the east. On February 13, Budapest was conquered by the Second Ukrainian Army. The German forces in Pomerania were almost choked in the tightening Russian vise; the threat to Stettin grew rapidly; a twelve-mile drive encircled Breslau and, in accordance with the characteristic Russian pattern, a solid bridgehead was established on the left bank of the Upper Oder, paving the way for the final drive across the river due east of Berlin.

The Russian deployments for that drive progressed with textbook precision. The initially narrow main attack front was steadily enlarged. Marshal Rokossovsky penetrated the former Polish corridor in the direction of Danzig; Marshal Konev surged forward in Silesia. On the 27th anniversary of the Red Army, Marshal Stalin, proclaiming—simultaneously with the Western Allies—that "full victory over the Germans is near," put German losses during the first six weeks of the Russian offensive at 800,000 dead and 350,000 prisoners (almost two divisions a day), plus 3,000 planes, 4,500 tanks, and 15,000 pieces of artillery.

On that glorious day for the Red Army, the central front of the attack, massing in front of Berlin, was less than 40 miles from the German capital. Marshal Konev's troops, after having crossed the Oder, had penetrated the west bank of the Neisse River, driving toward Goerlitz to secure the Russian center. Rokossovsky's men were mopping up in Pomerania. The troops of General Cherniakovsky, who was killed in action, were rounding up remnants of the German forces in East Prussia. Far to the south, Balkan armies, harassed by Marshal Tito's Partisans, were falling back hopelessly, unable to reorganize into a solid fighting front. They were useless to the main German forces and little more than a nuisance to the Allied Balkan armies.

Decisive interest, however, remained focused on Marshal Zhukov's central Oder River front, 138 miles wide, where all available strength was gathered for the finale. Although Allied operations in the east and the west were still only co-ordinated by general principles agreed upon at the Yalta conference and were independent in almost every means of execution, they became combined so far as the German High Command was concerned, when the new Allied drive toward the Rhine started in the west. Communications between the western and eastern armies of the Reich became entangled and operational spaces overlapped. The task would have been hopeless even for the great military genius whom the Wehrmacht failed to produce in the Second World War.

The Flood in the West.—The battle of the bulge had not seriously delayed Allied offensive operations and had severely drained German strength. The German commander in the west was in an extremely difficult position. A battle west of the Rhine, with the river behind the German lines, was a risky undertaking, since Allied air power could raise havoc with bridges and ferries. A battle along the river itself would mean abandonment of the Siegfried Line, which Hitler had boasted was impregnable when the French were still relying on their Maginot fortifications, and would neutralize the vital industrial regions of the Saar and the Ruhr. Probably in an effort to keep the Ruhr beyond artillery range, Rundstedt decided to await the Allied onslaught in the precarious shelter of the Siegfried Line. The experienced Marshal must have foreseen that a defeat west of the river might easily become a rout and

must have realized that fortifications based on First World War principles would be virtually useless. Rundstedt, however, had no choice except frying pan or fire.

By the beginning of February, a mighty Allied array was ready for the assault. From north to south, the Canadian First Army faced in the direction of Cleve; the British Second Army pointed toward the Roer River (these two armies again formed the Twenty-First Army Group under Field Marshal Sir Bernard Montgomery); the newly arrived United States Ninth, commanded by Lt. Gen. Courtney Hodges, was aimed at Düren and Cologne; the United States First faced in the direction of Bonn; the United States Third pointed toward the Saar and Moselle; the United States Seventh toward Pforzheim-Karlsruhe; and the French First Army faced the Black Forest opposite the upper Rhine.

The Allied armies employed strategy and tactics based upon their unexcelled technical equipment. No army had ever been so perfectly prepared for fast maneuvering with matchless mobile fire power (tanks, self-propelled guns, motorized artillery). The Allied air force had almost uncontested mastery of the skies. During large-scale ground actions early in the war, the Luftwaffe was chiefly concerned with support of ground operations and did not attempt raids far to the rear of enemy lines. The Allied air force could now extend its strikes over practically all German-held territory, constantly hitting every production and communication center, giving the reserves no rest, paralyzing the enemy while the ground forces moved in for the kill:

The hard crust of enemy first-line resistance was broken by intensive artillery barrages followed by infantry attacks. Then motorized forces went through retreating enemy troops like knives through butter, chopping up the defeated armies. Superlatively trained and equipped engineers dealt swiftly with the most formidable obstacles. Parachute troops, re-employed on a large scale for the first time since the Arnhem disaster, were dropped just far enough behind the enemy rear to create havoc but not so far as to remain isolated. It was teamwork at its best—the former German blitz technique amplified and improved to new peaks of perfection. Allied mobility in 1945 was far greater than that of the Wehrmacht in 1940, whereas Rundstedt's veterans, intermixed with Volkssturmers, were only a shadow of the formerly invincible German Army.

Rundstedt expected the main Allied drive to be aimed at the Ruhr. As if to confirm his expectations, the Twenty-first Army Group, after a thunderous barrage supported by 700 RAF heavy bombers, opened a push in the second week of February which pressed against the heavily fortified Reichswald (Reich's forest). The United States Ninth Army tackled the barrier of the Roer River, where man-made floods were launched through five dams still in German hands in a desperate effort to delay the Allied advance. General Patton's Third Army, thrusting through the dragon teeth of the Siegfried Line along the Moselle River with its armor, gave the Wehrmacht a foretaste of things to come. These threats, which the German High Command mistook for the "real thing," were only preparatory to a far greater offensive.

United States-British air armadas, beginning with a sky procession 300 miles long of 1,300 heavy bombers with a fighter escort, hit Cologne, Bonn, Coblenz, and Cleve in the rear of Rundstedt's doomed armies. Berlin was the target of two major assaults. Leipzig, with the largest railroad station in Europe, focus of German attempts to switch troops from east to west and vice versa, was badly mauled. Synthetic oil plants near Regensburg and Magdeburg were knocked out of operation temporarily. Benzol plants in the Ruhr suffered heavy damage. The mobility of the German Army was thus further reduced and the Luftwaffe became easy prey for Allied airmen. It could not cope effectively with the air attacks on the capital, pounded by 2,266 tons of bombs (five times the maximum load that struck London during the 1940 blitz) on February 3.

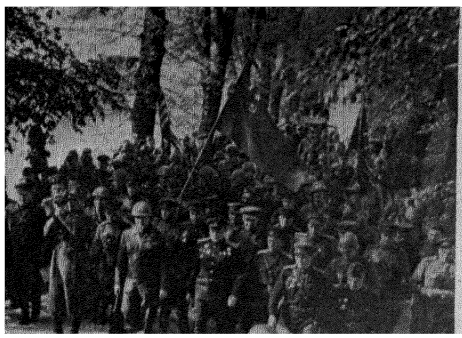
The march of doom stepped up on February 21, when the Canadian Army stood near Goch, advancing in the direction of the famous inland port of Duisburg on the Rhine; the British Second invested Roermond; the United States Ninth closed in on Juelich and Düren; while the United States First, also close to Düren, seized the vital Roer dams. General Patton's Third, developing a superlative penetration tactic, prepared to strike toward Coblenz and Bonn. On February 22, 7,000 Allied airplanes, including huge armadas based on Italy, hammered the front and rear of the 450-mile line. Every rail bridge, road junction, highway, and canal in the operational zone felt the full impact. The Wehrmacht could not maneuver anywhere with any degree of safety. If the German High Command had any far-reaching plan, it was shattered by Allied air power.

Under cover of the aerial assault, the great ground attack developed in a rectangle 30 by 75 miles, bounded by the Rhine in the east, the Roer and Meuse in the west, and running from Goch in the north to Euskirchen in the south. The final tactical break-through was achieved on February 23. On the 24th, Gen. Dwight Eisenhower could proclaim: "The attacks we are seeing now should mark the beginning of the destruction of the German forces west of the Rhine." The Roer, although almost 1,000 yards wide, was crossed by tens of thousands of troops. Plywood boats, each weighing 450 pounds and carrying 11 men, were shipped to the river in trucks and paddled in a shuttle service by engineers.

Within a few days after the break-through, Cologne came under artillery fire and the suburban districts of Düsseldorf, on the west bank of the Rhine, were invested. Confused by Allied feints, Rundstedt still believed the Canadians were to make the main drive. Concentrating his available transportation and reserves, he shifted nine divisions to the north, which facilitated a swift and brilliant advance by the United States Third through the Moselle valley. Meanwhile the United States First and Ninth, brushing aside slackening German resistance, penetrated the Juelich-Düren line. München-Gladbach, Krefeld, and Rheydt fell to the Allies, and Cologne resisted only until March 5. For the third week, Allied airmen hammered the German railroad system, once 42,299 miles long, almost three quarters of which could no longer be used regularly; 38,000 tons of bombs were dropped in two weeks.

The German armies west of the Rhine lost 250,000 men during the first 16 days of the Allied offensive. From the threatened Saar to Holland, the Wehrmacht broke up into pockets. The last Volksturm reserves, aged men and very young boys, showed low morale and even less fighting skill. But parts of the German forces had succeeded in escaping to the east bank of the Rhine and a number of fresh divisions were drawn up for a last-ditch stand along the river. It looked

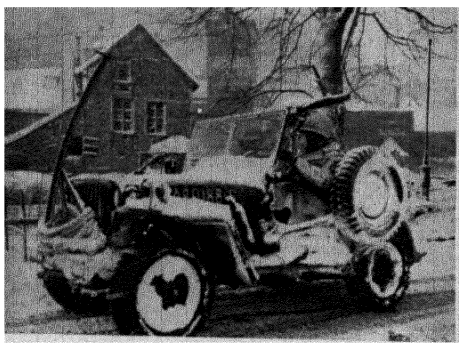
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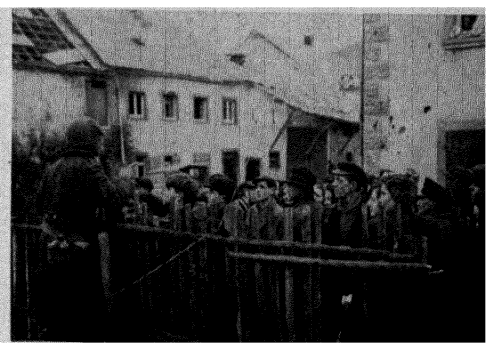
Following the official meeting between Russian and American armies in Germany, Russian and American soldiers march together with flags of the three major allies flying over their heads.



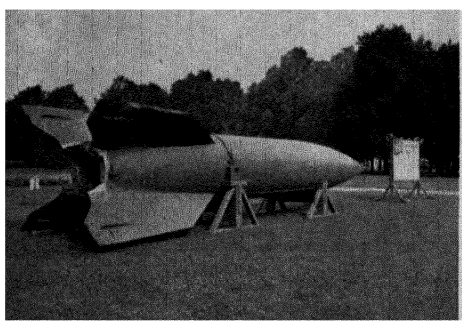
Troops of General Patch's Seventh Army crowd into Sherman tanks as they prepare to move deeper into the Reich.



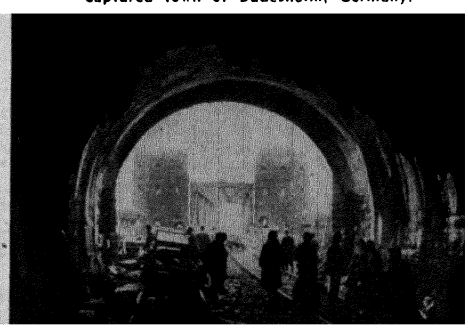
A 30th Division jeep moves through the streets of Malmédy, Belgium, during a snowstorm



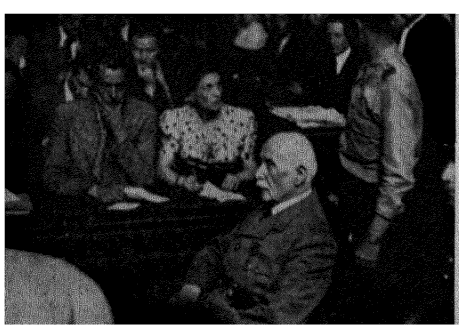
An infantryman of the 4th Division, U.S. Third Army, reads General Eisenhower's proclamation to civilians of the newly-captured town of Budesheim, Germany.



One of the world's largest and most destructive German V-2 rocket bombs is shown on park lawn in Washington, D.C.



Army men and equipment pour across Remagen Bridge in Germany.



French Press and Information Service

Henri Philippe Petain, wearing the seven stars of a marshal of France, during his trial as a war criminal.



© British Combine

At the trial of German war criminals at the Palace of Justice, Nurnberg, Herman Göring explains to his fellow prisoners.

as if the Allies, like the Red Army on the Oder, would have to regroup for a bloody river-crossing before penetrating into the heart of the Reich.

On March 7, at 4:30 P.M., the picture changed completely. At Remagen on the Rhine, the most crucial sector, fast moving United States forces reached the Ludendorff railroad bridge and found it intact except for some undisclosed damage done by inadequate demolition charges. They crossed the Rhine and established a bridgehead without a fight. Immediate German air attacks by the shrunken Luftwaffe could not prevent rapid expansion and consolidation of the bridgehead. When one span of the Ludendorff bridge collapsed a few days later, it did not matter. The German Rhine line was breached before it could be organized.

On March 9, the United States First and Third armies trapped five German divisions near Coblenz. March 18 saw the closing of another trap formed by the Third and Seventh around the Saar. While the First cut the strategic superhighway east of the Rhine, exploiting the Remagen bridgehead, General Patton's forces occupied Coblenz. Only 300 miles separated the Russian and Allied spearheads.

On March 24, the Allies crossed the Lower Rhine near Wesel. Prime Minister Churchill was present, calmly smoking his cigar and giving the V-sign. Paratroopers quickly linked up with the main forces. This bridgehead was rapidly expanded into the Westphalian plain by the Twenty-first Army Group and the United States Ninth. Patton, after effecting two other crossings of the Rhine north of Worms, advanced eastward, while the French First prepared to break loose in the south. On their 33d consecutive day of attacks, the Allied air forces put the unheard-of number of 12,000 planes into the air.

Four weeks after the start of the offensive, German armies west of the Rhine had finally collapsed. The Saar was isolated and the Ruhr under artillery fire in two places. The northern sector of the Rhine, already outflanked by the bridgeheads previously established, was breached in the most scientific river-crossing operation of the war. The Allies employed a 75-mile smoke-screen, while British and United States naval detachments, especially trained on the Meuse, used special landing craft (unprecedented in military history) which had been brought to the theater of action by a unique performance of Allied transportation. Compared to Allied generalship, the Germans seemed clumsy and almost amateurish. The sudden replacement of Field Marshal General von Rundstedt by Field Marshal General Kesselring did not alter the picture. Late in March, only 10 miles separated the central army group under General Bradley from the heart of the Ruhr, and Patton turned up south of Mainz. On March 31, General Eisenhower proclaimed: "The German High Command has lost control of many units, large and small. The Germans as a military force are a whipped army. A full scale battle of annihilation is under way."

Since December 16, German losses in the west were conservatively estimated at 750,000, of which 552,261 were prisoners. The eastern and western fronts were only 229 miles apart. Nine Allied armies were advancing unchecked: Patton invested Kassel, halfway between the Rhine and Czechoslovakia's western border; Montgomery swept through the Westphalian plain, aiming at the Baltic coast; the United States Fifteenth Army, recently brought up, joined the Twelfth Army Group's general advance; the Seventh progressed in the direction of Baden; the French First was beyond the Upper Rhine. Aerial bombardments pulverized the German troops, transforming them into a mob rather than a fighting force. The Germans were never again able to build up anything resembling an organized western front.

On April 7, United States and British forces, breaking out of the Wesel bridgehead, raced through Hanover province, while the British 7th Armored Division pushed toward Bremen. The United States Third Army, by-passing strongholds that might offer frontal resistance and planning to round up their garrisons later, had reached Fulda and Gotha. In two weeks, the Third Army had advanced 150 miles. Its progress was limited only by natural fatigue. The French First held Karlsruhe, while the Ruhr pocket disintegrated under concentric attacks. British and Canadian forces threatened to cut off the German garrison in Holland. During two weeks ending April 7, 20,000 square miles east of the Rhine were overrun, 50,000 Germans were killed or wounded and 300,000 captured. With Bradley's spearheads 132 miles from Berlin, only 175 miles separated the AEF from the Russians and it looked as if the western Allies would reach the capital first.

The Ruhr pocket was bisected on April 15, while Patton, again on the loose, advanced to within 78 miles of a junction with the Russians on the Czechoslovak border. Almost all of northern Holland was liberated and crossings of the Elbe were made. Then the AEF's advance on Berlin came to a halt. Although it was never officially admitted, there is reason to believe that this was a "political stop." The Russians wanted to enter the capital first, as a reward for their major contribution to victory in Europe. While western Allied columns rolled almost peacefully through the German countryside and resistance was limited to some isolated groups, the Russians were engaged in one of the bloodiest battles of the war.

The Battle for Berlin.—Most of the month of March, along the central Oder River line, was employed by Marshal Zhukov in building up irresistible strength for his attack on Berlin. The only major action by his forces during this time, which led to the occupation of Küstrin, had the sole purpose of gaining better springboard positions. The Russian wings, however, were on the move. By March 10, mopping up operations in Pomerania were completed and 200,000 German troops were pinned to the Baltic. To the south, Russian forces advanced in Slovakia, threatened Moravska Ostrava in Moravia, and pressed forward in Hungary to complete the occupation of that last German satellite and to penetrate into Austria, thus preventing the Germans from manning their "Alpine redoubt."

On March 23, while the nervous German radio prematurely reported the start of Zhukov's all-out attack, Marshal Konev opened twin drives, 200 miles southeast of the Oder River, toward the Sudeten mountains and the Moravian gate. On March 24, Marshal Malinovsky's Second Ukrainian Army shattered the German lines in Hungary after dashing forward 43 miles. On April 1, 7 years and 21 days after that country fell victim to Hitler's first aggression, the Ukrainians reached Austrian soil in the province of Burgenland. On the same day, the Fourth Ukrainian Army advanced toward Olomouc (Olmütz) in Moravia from the east, the Second Ukrainian Army penetrated the outskirts of the Slovak capital of Bratislava, and the Third Ukrainian, stepping up the distintegration of the German Balkan armies, ad-

vanced swiftly down the Drava River valley toward Maribor in northern Slovenia. Danzig and Gdynia, at the northern end of the front, also fell to the Russians.

Swiftly exploiting their gains in Austria, the Ukrainians reached Vienna on April 10. According to Russian reports, the Viennese population gave valuable assistance to the attackers. The Austrian capital is criss-crossed underground by an intricate system of canals, with which the Russians were familiar but the Germans apparently were not. The Reds therefore succeeded in staging a number of surprise underground moves which carried them deep into the rear of the German defenses. The Germans were driven out of the city after only two days of street fighting. Almost simultaneously, Yugoslav Partisans reported the collapse of the German lines northeast of Zagreb, provincial and temporary puppet capital of Croatia.

On April 14, the main blow fell. Zhukov's army broke loose in full strength east of Berlin. Some of the elements of superlative technique and equipment which characterized the western Allied offensive were missing, but the colossal impact of Russian manpower and artillery made up for any such deficiencies. The Germans were helpless against that might. Within one week, all the defenses of the Wehrmacht were shattered and the Red Army stood at Königswusterhausen, site of the big Deutschlandsender (principal radio station) just outside northern Berlin proper. Farther to the south, Russian spearheads outflanked the doomed capital by the capture of Zossen. Meanwhile Red forces occupied Senftenberg, only 14 miles from Dresden, and Marshal Malinovsky's Second Ukrainian Army pressed toward Bohemia against fiercely resisting German divisions under Field Marshal General Ferdinand Schörner.

The struggle in the east was still raging furiously in the last days of April. Berlin was encircled by April 25. The large Tempelhof airdrome fell the next day. On April 27, the industrial suburb of Siemensstadt was in Russian hands, and the attackers penetrated the innermost sector of Berlin, Unter den Linden and the Tiergarten. The Germans fought block by block, in subway shelters and makeshift forts, counterattacking at every opportunity. In isolated Latvia, the Wehrmacht struggled desperately to ward off its final doom. In Lower Austria, Moravia, and Bohemia, the Red Army also had to fight grimly for every mile it gained. But Berlin remained the focal point of the fighting.

On May 1, the Russian victory flag was raised over the Reichstag building. Also on May 1, according to unconfirmed German reports, Adolf Hitler died in the Reichs-Chancellery. On May 2, Grand Admiral Doenitz, self-styled leader of the collapsing Third Reich, broadcast from Flensburg that fighting would continue. On the same day, however, Berlin's last bastions fell, with 70,000 Germans surrendering to Zhukov's forces.

What little territory remained under German control was rapidly invested from all sides by the Allies, who closed in from the west, the east, and the south, where the long dormant Italian front had flared up for the climax of the war.

The Great Blow in Italy.—The Italian front burst into action early in April. Allied soldiers, who had fought their way doggedly from the Egyptian and Tunisian deserts up to north central Italy, had been almost forgotten while their comrades in the west fought spectacular battles. Now they had their day. The German forces under Colonel General Heinrich Georg von Vietinghoff, estimated at about 20 divisions, were strongly entrenched. They were formidable as long as they could hold their main lines, but, once driven out of these positions, they would be fatally handicapped by inadequate transportation and Allied air supremacy. The German commander decided on a stubborn holding battle.

On April 9, the British Eighth Army (commanded by Lieut. Gen. Sir Richard L. McCreery) crossed the Sillaro River, overcame two other water barriers within five days, and encircled Imola. Amphibious landings in the Comacchio lagoon threatened the prize objective, Bologna, from the east. To the west, the United States Fifth Army, supported by Italian Partisans, pushed along Highway 65, in the direction of Avenza. The Germans resisted strongly. After twelve days, however, the hard crust was broken and Bologna fell.

Sudden bad weather, hampering air activity, offered Colonel General Vietinghoff an opportunity to extricate his forces from the Allied grip and lead them back in reasonable order toward the Po River. But German transportation was in very bad shape and confusion spread in the Wehrmacht's ranks. Gen. Mark Clark rightly declared that the capture of Bologna was "the beginning of the end in Italy." One week after Bologna, Verona was taken, the Po Valley cleared, and the Allied armies began an irresistible advance, through scattered islands of half-hearted resistance, toward Bergamo and Brescia on the Swiss border to cut the north Italian front in two.

On April 28, the objective was reached and the German escape route was severed. On April 29, Colonel General Vietinghoff's representatives began surrender negotiations. On May 3, the capitulation of all German and Italian Fascist troops in Italy and southern Tyrol was signed. One million men were involved, more than three times the number supposed to hold the German lines in Italy. Only a complete collapse of fighting spirit could account for so swift a surrender by so formidable a force.

Finale in Europe.—By the middle of April, the AEF in western Germany held approximately the following positions: The Canadian First was near Groningen, Holland; the British Second close to Bremen; the United States Ninth around Wittenberge; the United States Third from Chemnitz to Bayreuth; the United States Seventh near Bamberg, approaching Nürnberg; the French First near Stuttgart. City after city surrendered with little or no fighting. On April 21, three United States armies sweeping through Bavaria were near the Danube. The Ruhr pocket was finally mopped up with the capture of 300,000 prisoners, bringing the total during the offensive to more than 1,000,000. One third of Germany was in the hands of the Western Allies.

April 26 was a momentous day. At 4:40 P.M., elements of the 69th Division of the United States First Army met spearheads of the 58th Guards Division of the Ukrainian First Army near Thorgau in the quiet Elbe sector, thus establishing contact between the Red Army and the AEF, which had been 2,300 miles apart when the march to victory began. After advancing 120 miles in 9 days, following the capture of devastated Nürnberg, Patch's Seventh Army crossed the Austrian border into Tyrol at two places, while Patton's Third moved along the Danube Valley toward the Upper Austrian provincial capital of Linz. Two fresh armored divisions joined the race, one taking Regensburg in Bavaria, the other

Hitler's residential town of Berchtesgaden. The advance continued into the Salzburg district of Austria. A junction of General Eisenhower's armies with the forces of Gen. Mark Clark from Italy was at hand. The vaunted German "national redoubt" was breached. These movements encountered only slight opposition. The British, however, attacking Germany's main port of Hamburg, still faced hard fighting. On April 30, Munich was in the hands of the victorious Seventh, while other units of that army closed in on the Brenner behind surrendering Colonel General Vietinghoff.

Feverish attempts by Gestapo Chief Heinrich Himmler to drive a last minute wedge between the Russians and the Western Allies were doomed to failure. Count Folke Bernadotte, president of the Swedish Red Cross, carried Himmler's messages offering surrender to the United States and Britain only. These overtures were reported to Moscow, but were otherwise ignored.

After the announcement of Hitler's death, Grand Admiral Karl von Doenitz tried to continue Himmler's efforts. He broadcast: "It is my first duty to save Germany from destruction by the advancing Bolshevist enemy. For this purpose alone the military struggle continues. As far and for as long as the achievement of this aim is impeded by the British and Americans, we shall be forced to carry on our defensive fight against them all."

But German resistance in the west was about to end. Montgomery's northern army group saw considerable action until May 4, when the German armies in that sector suddenly disintegrated. On that day, 150,000 men laid down their arms; 500,000 more surrendered on May 5, when all German forces in Denmark, Holland, and northern Germany capitulated. The German collapse in Yugoslavia took place on May 1, with Marshal Tito's Partisans advancing into Trieste and Austrian Carinthia, and disorganized German remnants in headlong flight ran right into the arms of the Allied forces advancing from Italy.

In Bohemia, the Germans attempted resistance to the last. The United States Third had to fight on Czechoslovak territory. On May 5, Czech patriots seized strategic positions in Prague and appealed frantically to the Allies to hasten their advance. The Russians were given precedence and Prague was therefore finally liberated by the Red Army, with American troops only a short distance away. On May 6, Swinemünde, last German stronghold on the Baltic, fell to the Russians, while the last remnants of German pockets from Latvia to East Prussia were cleared by Soviet forces. At the same time, General Malinovsky completed the conquest of Moravia. The very last German stand, which lasted for only one day, was made by Field Marshal General Schörner south of Olomoue, in Czechoslovakia.

The National Redoubt.—Late in 1944 and early in 1945, reliable reports told of a German plan to organize last-ditch resistance in what was believed to be an almost impregnable position, even if the Allies succeeded in over-running most of the Reich. Strong contingents of Elite Guards and first-class German Army units were to entrench themselves in the Alpine regions of southeastern Bavaria and in the Austrian provinces of Vorarberg, Tyrol, Salzburg, northern Carinthia, northeastern Styria, and southern Upper Austria. They would be comparatively safe from air attack in deep ravines and narrow valleys, and immune to ground attack on the top of high mountains. Lightning sorties were planned to confuse the besiegers and to terrorize Germans who might be disposed to collaborate with the Allies. A prolonged stand was expected to tire the victors into easier peace terms and even into an early evacuation of Germany. Avengers called "werewolves" were to be sent into Germany from the redoubt to kill "traitors" as well as foreigners. SS General Ernst Kaltenbrunner, a veteran terrorist, was placed in charge of the grimly romantic enterprise.

There is reliable evidence that this plan was seriously considered, that special headquarters were set up in Aussee, Styria, and that the future garrison was trained for its task. But the redoubt did not materialize. Probably German professional officers were opposed to such amateurish gestures and sabotaged them. It can also be presumed that the speed of the operations leading to final victory in Europe disrupted whatever plans the Germans might have had for a last-ditch stand.

German Underground.—Contrary to many dubious reports of internal German resistance to nazism, no conclusive trace of any popular anti-Nazi activity in Germany was ever found by unbiased observers. The Allied forces had no support from German citizens on their drive through the Reich, whereas a number of cases of civilian violence against the Allied troops were reported.

Unconditional Surrender.—While piecemeal capitulation of large German military groups was under way, surrender emissaries from Grand Admiral Doenitz proceeded to Allied Supreme Headquarters in Reims, France, on May 5. There they were met by Lieut. Gen. Walter Bedell Smith, General Eisenhower's Chief of Staff. German attempts to stall and bargain—the objective of splitting the Allies was still not entirely abandoned—were unsuccessful. Hopelessly beaten, the Germans had to give in. On May 7, at 2.41 A.M. European time (8.41 P.M. EWT May 6), the modest brick building of an industrial school at Reims, site of SHAEF (Supreme Headquarters Allied Expeditionary Force), was the scene of the signing of the unconditional surrender of all German land, sea, and air forces on all fronts. Colonel General Alfred Jodl signed on behalf of the German Supreme Command, General Smith for SHAEF, General Susloparoff as head of the Russian mission to France, and General Sevez for the French forces. This surrender was formally ratified in Berlin, ending the war in Europe May 8 at 6.01 P.M. EWT.

The procedure was repeated on May 9 in Russian-occupied Berlin, where Marshal Grigori Zhukov signed on behalf of the Russian Army, and British Air Marshal Sir Arthur Tedder on behalf of General Eisenhower. Field Marshal General Keitel signed for the German Army, Admiral von Friedeberg for the Reich's Navy, and Colonel General Paul Stumpff for the Luftwaffe.

The Second World War in Europe lasted for five years, eight months, and nine days from the German attack on Poland until V-E day.

Far Eastern Theater.—Never before has any war covered such immense expanses of land and water as the Far Eastern phase of The Second World War. The recapture of the vast Japanese empire of conquest, island by island and mile by mile, and the concentration of naval and air power in support of such operations would have been an almost incredibly slow and costly process. This fact encouraged the Japanese to continued defiance, even after a long and uninterrupted series of setbacks destroyed their prospects of final victory. The Tokyo government was confident

that sheer exhaustion would eventually force the Allies to accept a negotiated peace and that Russia, weakened by tremendous losses in Europe, might maintain its uncomfortable neutrality.

To frustrate Japanese hopes, the United States —which bore the brunt of the struggle in the Far East—and the other Allies had to create a completely new strategy. Concepts which would have been dismissed as fantastic by the conservative general staffs of traditionally militaristic powers were accepted as practicable and developed by the more flexible minds of American generals and admirals. Moves of great boldness were made possible by the unprecedented volume of United States production and by the rapid growth of the range and carrying capacity of the airplane.

The Japanese generals, students of German textbooks, were old-fashioned in their strategic ideas, although they did introduce innovations in tactics (e.g. infiltration). They were sure that the by-passing of strongholds was too dangerous to be attempted except to a very limited degree. They found comfort in the traditional doctrine that no commander in his senses would leave large and unconquered garrisons as a threat to his rear, overlooking the point that such garrisons cease to be a threat if their communications are severed. The American plan, overruling tradition, contemplated by-passing on an unprecedented scale, regardless of the number of enemy forces involved and the distances to be covered. United States strategists had the vision and courage to see that this was the only way to shorten the war and hold down the cost of victory.

By 1945, distances had become Japan's Achilles' heel. In 1941 and 1942, when the Japanese tide engulfed island after island, penetrated the Indian Ocean, and surged through Burma, Malaya, Thailand (Siam), and Indo-China, the Nipponese controlled the sea and air in large sections of the Pacific. They also ruled the air over much of China. Under these conditions, expansion of the fighting area was an advantage to the Japanese. By the end of 1944, the situation had changed completely. The Japanese Navy had been reduced to a shadow of its former might and confined to its home waters. The United States air force and the RAF controlled the skies wherever bases were available. Japanese garrisons on distant islands were cut off from the mother country because the navy could no longer protect their communications. These were the facts upon which the Allies based their plan.

To pave the way for victory, Japanese shipping and air traffic had to be swept from sea and sky beyond the main islands. Relatively few strategically located bases were needed for that purpose. The Allied attack therefore was to be concentrated exclusively against such bases. Once these bases were firmly secured, the destruction of the remnants of Japanese air and naval power would be assured and the helpless Japanese garrisons of the by-passed islands could be left to starve and mopped up later when the Allies chose.

The plan contemplated an ultimate invasion of the Japanese main islands, admittedly a task of unprecedented difficulty. On D-day in Europe, about 60 divisions had been moved across the channel from positions 20 to 100 miles away. Against Japan, more than twice that number would have to join battle over many times the distance. The freeing of the occupied parts of China—possibly without Russian support—was another major problem. But the essential key to Allied strategy was the battle for the bases, actually begun in August 1942, at Guadalcanal, which was in full swing when the fateful year of 1945 began.

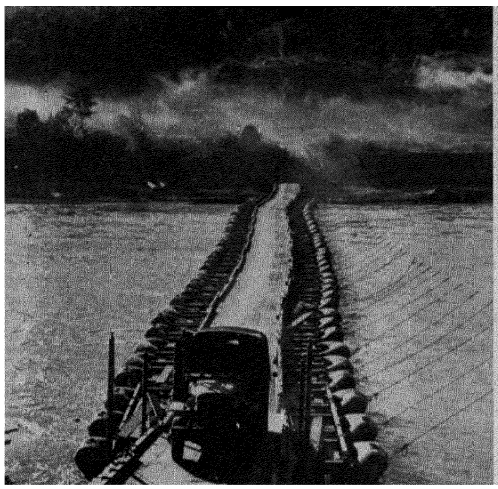
The Philippine Campaign.—On January 6, the Tokyo radio reported that carrier-escorted United States landing craft were concentrating west of Luzon, principal island of the Philippine Archipelago. The Japanese plainly expected the main United States attack in the south of Luzon. Earlier reports had told of additional landings on previously invaded Mindoro and land-based air attacks against Japanese coastal shipping around Luzon. Powerful United States naval forces under the general command of Admiral Chester W. Nimitz, roaming Philippine waters for 21 consecutive days, kept about 500 planes in the air. Among other targets, they attacked Formosa and Okinawa in the Ryukyu islands, only 310 miles south of the Japanese home island of Kyushu. Conservative estimates gave Japanese losses as 95 ships sunk or damaged and 121 planes destroyed. Heavy air attacks on Luzon followed the tactics used successfully at Leyte. The Japanese offered less resistance than ever before in the war. In 1944, Japanese losses from United States air and naval power had amounted to 6,000 planes and 550 ships, more than the Empire could replace. Admiral Nimitz predicted even higher losses for Japan in 1945.

While naval aircraft spread havoc on the approaches to Japan, Marianas-based B-29 bombers (Superfortresses) dealt heavy blows to the heart of the Empire (Tokyo, Nagoya, and Osaka) early in January.

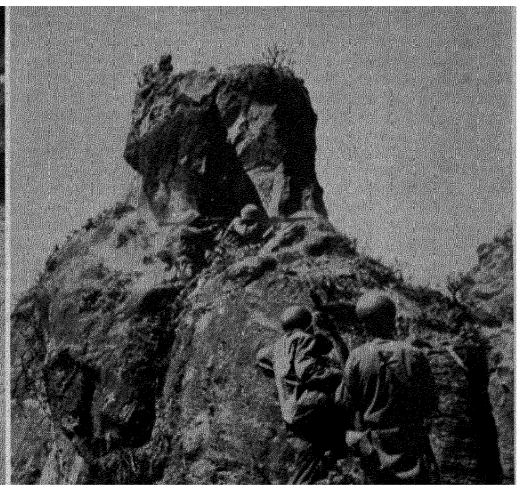
On January 7, the largest amphibious force ever assembled, more than 800 craft ranging from battleships and carriers to PT boats and submarines, steamed into Lingayen Gulf on the northwest coast of Luzon. The Japanese commander, General Tomojuki Yamashita, stubbornly preparing against a blow from the south, was taken by surprise and never recovered from the shock. American landing operations, beginning two days later, were carried out successfully against very minor opposition. Within 24 hours, the landing forces established solid beachheads 15 miles wide and 4 miles deep on the sheltered 60-mile shore line of Lingayen Gulf capturing 20 settlements and began preparing for the drive on Manila, 110 miles away. On January 9, two years and ten months after he had left the Philippines in defeat, Gen. Douglas MacArthur went ashore on Luzon and thereby fulfilled his famous pledge: "I shall return."

Two weeks later, with more troops pouring in and all beachheads secure, the right wing of the United States forces penetrated to the tip of Bolinao Peninsula on the west coast of Lingayen Gulf, cutting a vital highway linking Japanese forces in the north and south. Troops of the United States Sixth Army (Gen. Walter Krueger) beat off furious but poorly co-ordinated Japanese counterattacks on the southwestern sector. At the southern tip of the United States spearhead, the Agno line 70 miles from Manila (first natural barrier on the way to the capital) was breached almost without opposition.

General Yamashita hastily assembled what forces he could muster around Manila. On the 19th day of their advance, United States troops were only 40 miles from their prize. Clark Field, Luzon's main air base, was taken. One week later, only 22 miles separated MacArthur's men from the Filipino capital. The United States Sixth Army, forming pincers, split the thinned out Japanese defense forces while new landings were ef-



River near Namhkam. Note the dust from the vehicles descending the bank on the far shore.



rines on Iwo Jima stalk snipers hidden in caves and holes after the battle's end. A bazooka-man has just fired into the mouth of a cave, and other members of the Jap-hunt patrol climb into position.



A sergeant fires a flame thrower at a Japanese position somewhere in Luzon, P.I.



A major general holds a conference with his officers on a road just behind the front in the Paco section of Manila, Luzon, P.I.



Marines in drive for Naha, capital of Okinawa, wait on the crest of one slope while a barrage of phosphorous shells explodes among the Japanese positions on the farther incline.



Tanks and truckborne infantry of the British 14th Army advancing to Meiktila on the road near Myanaung, Burma.

fected. The United States Eighth (Lieut. Gen. Robert L. Eichelberger) pushed on to Subic Bay and Olongapo to establish contact with the Sixth. When the Japanese Command bared its apparently useless southern defenses to bolster the lines around Manila, other units of the Eighth, quickly seizing their opportunity, landed 50 miles south of Manila Bay near Nasugbu, thus bringing the Japanese under a three-pronged attack.

Admiral William F. Halsey's Third Fleet, still supporting the Luzon operations, extended its operations to the coast of China. From the beginning of September 1944, until the end of January 1945, the Third Fleet destroyed 4,370 enemy planes, 89 warships (241,000 tons), and 563 transports (776,000 tons), and damaged 152 warships and 1,011 other craft. It also wrought great havoc on enemy docks and shipping. Japanese commercial tonnage was reduced to 3,500,000 tons, about one third of what it had been in 1941. By the end of January, the United States objective of isolating the Japanese homeland from its conquered outposts was already partly achieved.

Early in February, MacArthur's armies recaptured Bataan Peninsula. After one month of campaigning, they held 8,000 square miles of Luzon, with the Japanese defenders in an almost hopeless position through the loss of vital Munoz. Filipino guerrillas, proudly helping the Americans, harassed the enemy constantly. Japanese losses were reported to amount to 48,000 in engagements that could not be termed an organized defense. On February 7, a spearhead task force of the 1st Cavalry Division of the United States Sixth Army entered Manila from the east in a bold move to free the Allied civilian internees in Santo Tomas. At the same time, parts of the United States 37th Division closed in from the north and elements of the Eighth Army came up from the South. It looked as if Manila might be liberated almost without a fight. Once the United States forces had invested the city, however, the Japanese offered stubborn resistance which caused heavy casualties and severe material damage.

On February 17, the Stars and Stripes were again raised over Corregidor, the island citadel in Manila Bay where the American defenders under Gen. Jonathan M. Wainwright made their last epic stand in 1942. On the same day, the Americans succeeded in penetrating the ancient *intramuros* section of Manila. Although the Japanese armies showed no strategic plan and were hopelessly outmatched in men, guns, planes, and tanks, they still fought fanatically in isolated positions regardless of odds and losses. This gave a clear foretaste of what the Allies would have to face in future invasions—especially the invasion of Japan proper. But operations continued according to plan. As the Philippine campaign moved into its mopping-up phase, American strategists took another bold step.

Iwo Jima.—As long as the Japanese home islands were beyond the range of Allied land-based fighter planes, air attacks on Japan were restricted to unescorted B-29s and carrier-based assaults. In order to make the aerial blockade and bombardment fully effective, a base had to be won from which fighter escorts for bombers could be provided and shorter range bombers could operate against Japan. Another long stride was successfully taken with an advance of 725 miles at one jump into Japan's inner defense at the island of Iwo (Iwo Jima) in the Volcano Group, only 750 miles south of Tokyo.

This tiny island (8 square miles) was vital to Japan's defenses and the Japanese had built it into one of the most formidable bastions in the world. The volcanic soil of Iwo, thickly covered with lava, handicapped every step by an attacker, while the defenders were securely entrenched in permanent positions and underground bastions which honeycombed the islands. In the south, the 546-foot volcano, Mt. Suribachi, contained emplacements for guns of all calibers which dominated all of the island and its approaches. The bastion was fully manned with elite troops, ready to die but not to surrender. They could hardly hope for relief or reinforcements, since the United States ruled the surrounding air and sea.

On February 15, a strike by United States carrier-based aircraft destroyed 500 planes over Japan. At the same time, synthetic oil factories in Japan—under heavy strain since the supply of oil from the Dutch East Indies and British Borneo had been virtually cut off—suffered a blasting that further crippled the Japanese air force. While the carrier planes were still in action, an armada of 800 ships lined up off the shore of Iwo. The United States air force had worked on Iwo for 74 days. Short-range shelling by naval guns of all calibers lasted for two days more. A few Japanese planes and PT boats struck furiously at the attackers, but they could not prevent or delay the invasion.

On February 19, the 4th and 5th Marine divisions stormed ashore. Under the most difficult circumstances and at the price of heavy losses, they fought their way forward literally step by step. The Marines not only lived up to but even surpassed their finest fighting traditions. On February 23, the American flag flew over captured Mt. Suribachi, but gains continued to be measured in yards, while United States casualties during the early phases of the invasion ran as high as 100 an hour. The defenders had to be blasted out of every foxhole and every cave. The final drive opened on March 6, after a short stalemate. After 27 days of battle, Iwo was completely in American hands. United States casualties totaled 19,938. Japanese losses were more than twice as large. The objective was worth the terrible price—but the latter was considered another grim warning of what might be in store for the invaders of Japan proper.

Siege by Sea and Air.—The constant air and naval attacks on the narrowing inner circle of Japan's defenses and Japan proper, although frequently termed a blockade, differed from the traditional type of blockade in its offensive characteristics. It was not just a slow choking of the defender but a continuous hammering at his fortifications, factories, and communications. Although experiences in Great Britain and Germany had shown that a determined people could take a severe pounding without breaking, the great inflammability of Japan's lightly-built cities was bound to result in a degree of destruction unknown even in battle-scarred Berlin. During the third week in February, a mighty United States carrier task force steamed within 300 miles of Japan and 1,200 planes of the navy air arm attacked the Tokyo area. After two weeks of practically continuous action, Admiral Marc A. Mitscher's carriers sent another 1,000 planes over Tokyo. They were followed by 200 B-29s. Six hundred fifty acres of the city were engulfed in flames. The task force then steamed toward Formosa, attacking this vital Japanese island base while some of its units rained blows on the Ryukyu islands, another barrier to Japan's innermost defenses and the China coast. The Ryukyu attacks were pressed on a large scale after March 1.

What was left of the Japanese fleet obviously shunned battle and husbanded its depleted strength for the defense of the most vital objectives. The air attacks on the homeland were stepped up. On March 9, the first 1,000-ton raid by 300 B-29's, using incendiaries on an unprecedented scale, laid waste 15 square miles of the Imperial capital and destroyed the dwellings of a million people. Other devastating B-29 raids hit the aircraft manufacturing center of Nagoya (March 12), Osaka (March 14), and the Kobe shipyards (March 17). A two-day blow by 15 fast carriers of Mitscher's famous Task Force 58 struck the Japanese inland sea with 1,400 dive bombers and torpedo planes hitting all kinds of targets. Special attention was given to units of the Imperial fleet moored at Kure naval base. Returning from that mission, the carrier force joined the attacks on Okinawa. The fury of the onslaught against "fortress Japan" mounted in a steady crescendo. The British fleet contributed an attack by a carrier task force in the Sakishima Group, between Okinawa and Formosa, creating a diversion of Japanese attention from threatened Okinawa.

The Conquest of Okinawa.—The Ryukyu chain, although practically neutralized as a Japanese base for offensive operations, could not be bypassed. Allied bases in this group were needed for the prospective battle of the Chinese mainland and for the further intensification of destruction in Japan proper. The most valuable prize was the largest island in the chain, Okinawa, strongly manned by Japanese troops and heavily fortified. It was believed that 50,000 Japanese soldiers were on Okinawa, a figure that turned out to be a serious underestimate. For nine days, as the climax of previous attacks, the United States Fifth Fleet, reinforced by powerful British units which had recently arrived in the Pacific, hammered incessantly at Okinawa and adjoining islands. The Japanese had been pushed back 3,000 miles from their high tide of conquest.

On April 1, when the pounding came to an end, United States troops went ashore on Okinawa, an island 67 miles long and 3 to 10 miles wide. The 3d Marine Division landed on the west coast and an amphibious army corps, meeting amazingly little opposition at first, advanced through the Ishikawa Isthmus. The weight of Allied preparations seemed to have stunned the defenders and it was hoped that Okinawa would be less costly than Iwo Jima. In reality, the Japanese commander, recognizing that Allied control of sea and sky would permit the invaders to land practically wherever they chose, shrewdly decided to concentrate his forces in a comparatively narrow space in the southern half of the island where they could not be as easily turned or outmaneuvered as they could if they were thinly spread along the whole coast.

The situation created by the Allied attack was so grave that the Japanese Navy came out for battle. On April 6, the Fifth Fleet delivered a smashing blow to the Imperial forces, sinking the largest Japanese battleship still afloat, the 45,000-ton *Yamato*, two light cruisers, and three destroyers, with a loss of three destroyers and damage to one United States heavy unit. With their navy knocked out, the Japanese resorted to their last instrument of defense, the Kamikaze ("divine wind") suicide fliers.

The Kamikaze pilots were all volunteers, at least in the beginning. Some of them used normal bombers, carrying a full load of bombs, which they tried to crash dive on their floating targets. Others flew any type of plane, loaded with explosives, that was handy. Still others flew the Baka ("stupid") bomb, which somewhat resembled the German V-1 except that the latter was unmanned. The Baka—built like a small airplane, about 20 feet long with a wing span of 16 feet—was flown to the vicinity of the target by a larger plane and then released. After its release, it continued to the target with rocket propulsion. The pilot, like all Kamikaze flyers, had no parachute. A high explosive charge in the Baka bomb's nose was ignited by a fuse as soon as the missile hit the target. The Japanese High Command not only expected the Kamikazes to cause heavy damage, but also thought they would frighten the Allies into the belief that their task would be too costly and difficult against an enemy who employed such fanatical methods of self-destruction. The first objective was partly attained. Large casualties and material damage were inflicted on Allied naval forces, but Allied morale was not impaired.

While the fleet offshore battled the Kamikazes, the United States invasion forces from the west coast started to push to the north and south. Progress northward continued steadily at a rate of one to two miles a day, and the northern part of the island was rapidly cleared of the enemy. But the southern drive, meeting fierce resistance, soon came to a halt. The ensuing battle was even bloodier than Iwo, with the Japanese fighting desperately for every inch of ground. The United States forces showed equal determination. On April 19, units of the Tenth Army advanced about half a mile in the direction of the island capital of Naha (Nawa). On April 21, Lieut. Gen. Simon Bolivar Buckner's 27th and 96th divisions, after a tremendous artillery barrage, continued to inch forward, with the heaviest fighting centered at Hill 178. On April 22, the Japanese were hemmed into one fourth of the island's total surface, where they held on grimly. The front was only about 8,000 yards wide, but the fury of the fighting and the number of casualties made the operation a major battle.

On April 27, the 7th Division closed in on Shuri, second city of Okinawa, only two miles away. On May 5, "Banzai" counterattacks gave evidence of Japanese distress. By May 13, the suburbs of Naha were invested. Sugar Loaf Hill, the key to Naha, was taken and retaken five times before it remained in United States hands. By May 18, United States casualties on Okinawa had reached 30,526, including 3,958 suffered by the navy. Three United States divisions, in 44 days of fighting, had managed to advance only 15,000 yards. On May 25, heavy rains added to United States troubles. Japanese suicide attacks continued with the result that, on May 31, the count of Japanese dead passed 60,000. On June 2, Naha airfield came under attack and Shuri was finally won. The fleet supported the land drive with everything it had. Five days later, the end was in sight. Pincer drives cut the remaining Japanese forces into two pockets, which were incessantly hammered by land and naval artillery and from the air. The three strongest Japanese hill positions fell on June 16, bringing 97 per cent of Okinawa under United States control.

By June 21, after 82 days of ferocious and costly fighting, Okinawa was declared won, with some mopping up operations still to be completed. Japanese dead amounted to 98,564, with 6,932 prisoners. Japanese airplane losses reached the gigantic figure of about 4,000. But the United

States forces had also suffered heavily, with 11,260 dead, among them the valiant Lieut. Gen. Simon B. Buckner, and 33,769 wounded. Thirty-three Allied ships were sunk, more than 50 heavily and more than 100 slightly damaged. The battle of Okinawa, called "decisive" by the Japanese premier when it began, turned out in fact to have been a decisive battle. After June 22, nothing could stop Allied air and sea power on their way to victory. On land, however, the fighting continued with heavy Japanese resistance on many fronts.

Chinese Mainland.—As available Japanese forces were not large enough to occupy all the parts of China wrested from the national government, the Japanese spread an intricate network of key strongholds over enormous areas. Japanese garrisons stretched from the Manchurian-Russian border along the Chinese coast to French Indo-China, Thailand (Siam), and Burma. As long as the Japanese army, numbering about two million on the Asiatic mainland, was on the offensive, as it had been most of the time since 1937, this occupational system worked smoothly. In the event of a defensive against strong and well-equipped forces, however, the system of scattered strongholds would contain elements of danger for the Japanese.

Early in 1945, it appeared that any large-scale Allied counteroffensive on the Chinese mainland was still remote and that the lifeline of Japanese conquest from Manchuria to Singapore was secure. To prevent possible Allied amphibious operations against the China coast, the Japanese, after the invasion of Luzon, struck out to strengthen their hold in China. They captured the key railroad center at Kukong, the United States airbases at Sichwan and Kanhsien (Kauchow), and the mining center of Namyung. Chinese resistance was spirited but ineffective. The next Japanese move, late in March, was undertaken by at least five divisions, some of them from the Kwantung Army guarding the Soviet border. This drive reduced United States aerial support for the hard-pressed Chinese by forcing the evacuation of another airfield at Lachow.

But somber predictions from some sources about China's inability to continue resistance were not borne out by the facts. On April 7, Chinese Headquarters reported a victory in southwestern Hunan Province, removing the potential threat to Chungking and recapturing Lachow. Three weeks later the Japanese, after regrouping, pushed toward the United States airbase at Chihkiang. As United States air power was the most effective modern weapon in China, steps had to be taken to counter this threat. United States Lieut. Gen. Albert C. Wedemeyer disclosed plans for the co-ordination of American and Chinese efforts to deal effective blows to the enemy. His announcement was immediately followed by a successful Chinese drive to cut the highway to Shanmen, escape route for 60,000 Japanese troops. On May 20, Chinese forces entered the port city of Foochow after a see-saw battle.

On June 2, the Japanese lines near Paoking (Shaoyang) in Honan province gave way and the bastions of Tantow and Chikoupu fell to the Chinese. With the Japanese position in southern China deteriorating and no reinforcements available, signs multiplied that the Imperial forces were preparing to abandon large areas and withdraw to the north in order to concentrate their defenses. This move inevitably exposed Indo-China to the Allies. On June 9, Chinese troops captured the cities of Chungching and Cao-bang on the Indo-Chinese border, while other forces took Szelo in Hunan Province, 23 miles from Indo-China. By June 17, Chiang Kai-shek's armies held 160 miles of the China coast and were pushing in the direction of Shanghai. Two weeks later, after capturing Luchow, the Chinese were only 145 miles from that prize port and their patrols also crossed into Indo-Chinese territory. American-trained Chinese, operating 450 miles west of Okinawa, and supported by Okinawa-based air power, seized Taichow.

The Japanese command, nervously expecting the next large-scaled Allied amphibious operation to be aimed at China, massed its reserves to strike near Amoy as a countermeasure. Twin Japanese drives opened on July 6, gaining 35 and 55 miles respectively along the coast, but they soon faded out when transportation broke down. On July 15, Chinese forces were nearing Kweilin, which was captured on July 27. Four Chinese armies were on the move, supplies flowed into China in increasing volume, and the United States air force roamed the skies in great strength in the battle zone, taking off from hard-won island bases. Three new airfields were put into operation around Kwangsi.

Both the United States struggle for the island bases and the British victories in Burma, which opened and secured the land route to China, helped to turn the tide of battle in China. Another important factor was the reopening of the Ledo-Burma Road into China late in January, after all traffic had been cut off for 33 months. The road was rechristened in honor of United States Gen. Joseph W. Stilwell, who had directed under extremely difficult conditions the construction of a new section of it, leading from India.

Reconquest of Burma.—From January 10 to February 5, British air and light naval units, in a spearheading operation, penetrated the waters of the Malayan coast. Meanwhile land fighting in Burma continued on a small scale. Early in March, the British stepped up their attacks and besieged Mandalay. By March 11, the city's citadel was seized. The Japanese countermove was political rather than military. The French puppet government in Indo-China was removed by the Japanese occupational authorities on the ground that French garrisons had attempted to co-operate with the advancing Allies.

During the third week in March, an amphibious threat to Japanese positions at the mouth of the Irrawaddy River took shape, menacing Japan's grasp on regions rich in oil, rice and tin. Japanese losses of 50,000 known dead during the 1944 campaign began to tell. The Allies had also suffered heavily, with 10,000 dead, 27,000 wounded, and 3,000 missing. Moreover, no less than 250,000 United States, British, and Chinese soldiers had been struck by illness. But Allied ability to replace losses increased from month to month, whereas that of the Japanese vanished. After capturing the rest of Mandalay by the end of March, the reinforced British Fourteenth Army captured Meiktila, cutting off 30,000 Japanese, while Chinese troops, retaking Lashio, opened an overland supply route to support a campaign into Thailand (Siam).

On April 7, Lord Mountbatten's Southeast Asia Headquarters triumphantly announced that the Japanese Fifteenth Army, pocketed between Mandalay and Meiktila, had ceased to exist as an organized fighting unit. Two other Japanese armies operating in that theater had suffered heavy casualties. It was the greatest Allied victory in Burma since the war began. Supplies

flown in by the Air Transport Command contributed considerably to the success.

Spearheaded by fast armored forces, the British Fourteenth Army, on April 28, advanced 64 miles toward Rangoon to a point only 54 miles from the Burmese capital. Heavy air blows hammered the retreating Japanese. On May 4, Rangoon was in British hands and Pegu, 50 miles north of Rangoon, was captured on the same day. With better roads secured by these gains, the mobility of the Allied forces improved. Even the monsoon season did not halt the Allied advance toward Thailand. The battle of Burma was officially declared at an end on July 28, with the Japanese Twenty-first Army annihilated.

Reconquest of Borneo.—Long isolated from the homeland, the Japanese invaders of Borneo saw all the wealth of this huge island become useless to their war effort. To the Allies, however, the recovery of Borneo meant access to extremely valuable raw materials (especially oil), and the consolidation of their strategic position. General MacArthur ordered an attack on the island. The initial phase was carried out by a sizable Australian amphibious force on May 2. The Australians went ashore first on Tarakan, an island of 150 square miles off the northeastern coast of Dutch Borneo. This was the first recovery of Dutch East Indies territory except for a few small footholds in New Guinea. After a week of fighting, the town and airbase of Tarakan fell to the Australians. On May 20, Japanese forces defending the remainder of the island were split and crumbled. On June 8, Tokyo reported Allied landings on Labuan Island, following an intense air bombardment.

After these preliminaries, the Australians achieved a successful landing on the Borneo mainland at Brunei Bay, driving toward the Brunei and Sarawak oil fields and rubber plantations. These fields were capable of supplying 20 per cent of the total Allied oil consumption and the quality of the oil was exceptionally high. The strategic location of the beachheads—700 miles from the Indo-China coast and 800 from Singapore—opened another bombing threat to these precarious Japanese conquests.

On June 16, the Australians had progressed 4 miles toward Brunei. On June 27, a heavy air bombardment hit Balikpapan in eastern Borneo. After five days of furious air attacks, the invasion began. Here again the Australians bore the brunt of the fighting, capturing Balikpapan harbor within one week after the initial landings. By July 15, the harbor had been opened to Allied shipping, while a 14-mile advance secured a valuable seaplane base. Although the size and topography of Borneo gave Japanese die-hards an opportunity to hold out indefinitely in the wilderness, concentric Allied assaults promised quick recovery of all objectives of economic or military importance.

The Great Assault.—Land operations, somewhat slowed down by vast distances and fanatical Japanese resistance, continued during the late spring and early summer. Although the Philippine campaign had entered its final stages in April, fighting against scattered Japanese defenders there lasted until the end of the war. The drive against Baguio, center of the Japanese mountain defenses in Luzon, began early in March and led to the capture of that town on April 28. On May 5, Davao, last large Philippine city still in Japanese hands, fell to United States forces. The United States Eighth Army completed the liberation of the island of Mindanao in June. Five months and nineteen days after the initial landings, General MacArthur announced that the Luzon campaign was completed, with Japanese losses of 115,000 dead and United States casualties of 1,827 dead and 11,350 wounded.

Air and naval operations against the Japanese homeland steadily increased in intensity. On April 7, B–29's, protected by Iwo-based fighters, raided Tokyo and Nagoya. On April 14, another big incendiary raid hit the Imperial capital, climaxing a week of uninterrupted attacks against targets in Honshu and Kyushu islands. On April 28, six airfields on Kyushu were hit by B–29's. These last raids were heavily opposed by Japanese fighters. Japanese air resistance varied from nonexistent to furious. It became evident that the Japanese High Command was husbanding some of its air power to counter assaults on the most vital targets and to ward off the invasion of the homeland.

On May 2, 197 mining operations were carried out from the air in Japanese home waters, thus opening another stage of the siege and crippling what little coastal shipping and fisheries still existed. May 10 saw a combined air and naval action against Minami-Daito, an island only 200 miles east of the Ryukyus, deep in Japanese home waters. The coastal shipping of Korea was attacked the next day. The fury of United States assaults mounted during the following week, with attacks on Honshu, the Bonins, the Palaus, and the Marshall Islands. Two raids against Nagoya, carried out by 500 Superfortresses within three days, dropped 7,000 tons of bombs. The Malaya region came under heavy air attack later in May. On the 24th, 20 enemy vessels were sunk in the Java sea and 13 more were destroyed off Formosa.

On May 28 it was disclosed that the Eighth Air Force under Lieut. Gen. James H. Doolittle had been transferred from Europe to the Far East. On the Asiatic mainland, Japanese communications suffered a constant hammering from Indo-China to the Yangtze River. In Japan itself, Tokyo, Osaka, Nagoya, Kobe, and several smaller cities were blasted with thousands of tons of bombs. From June 3 to June 10, 85,000 tons of shipping were destroyed and 91,000 damaged. On June 14 and 15, a British task force hit Truk Island against weak opposition. After a week of attacks on smaller Japanese cities, the B–29's returned to their tactical objectives, smashing at four industrial centers on Honshu on June 25, oil refineries near Nagoya on the 26th, naval bases on June 28, oil refineries again the next day. The Japanese lifeline to Korea, once believed to be attack-proof because of its natural protection by numerous islands, was virtually cut by air raids which destroyed or heavily damaged 33 ships.

Apart from the heavy blows by B-29's and carrier planes, the air forces under Gen. Douglas MacArthur flew 135,000 sorties during the first six months of 1945, dropping 90,000 tons of bombs and destroying or heavily damaging 2,282,000 tons of shipping.

From July 1 to 3, Japan was hit again by 2,500 tons of demolition and gasoline-jelly incendiary bombs. On July 7, 600 B–29's rained 4,000 tons on Kufu, Chiba, Shimizu, Akashi, and Shitsu. Tokyo was the target again on July 11, and 2,000 planes raided airfields and production centers the next day. The attackers were mostly unchallenged.

On July 10, the United States Third Fleet, under Admiral William T. Halsey, set out on a

record strike against the main enemy islands. The warships shelled Honshu and Hokkaido, with special attention to the iron producing city of Kamaishi. The fleet moved within rifle shot of the shore, but met no opposition. Carrier based planes carried out 6,000 sorties during 11 days of operations, while B–29's dropped 12,000 tons of fire bombs. Six United States battleships, the British battleship *King George V,* and a great number of smaller naval units, some of them British, hit the industrial region near Tokyo, where 500,000 people were engaged in war work, with 8,000 tons of explosives.

On July 21, the Potsdam Declaration of the Allies, still not including the Soviet Union, warned the Japanese to surrender unconditionally or face total destruction. The Japanese emperor was not mentioned in the declaration.

Although the invasion of Japan proper did not seem imminent and experiences on Iwo and Okinawa indicated how fanatically the Japanese could fight, Japan's situation was hopeless. With the Imperial armies on the Chinese mainland unable to get supplies and scattered forces all over the western Pacific islands cut off and doomed to slow starvation, the arms of the Japanese octopus had atrophied. The main Japanese armies had not yet suffered defeat, but their final defeat was assured. Kamikaze fliers and other fanatics could not change the inevitable outcome. Japan's only hope was to prolong the war to a point where the Allies might be willing to accept something less than unconditional surrender.

The remnants of the Japanese Navy were mostly bottled up in the Kure naval base and the shipyards of Okayama and Fukuyama. On July 24, 1,500 carrier-based planes attacked these strongholds, continuing their raids on July 25, 27, and 28. The toll amounted to 26 warships and 208 merchant ships sunk or damaged, including nearly all of Japan's few remaining large naval units—a super-Pearl Harbor in reverse. United States destroyers entered Tokyo Bay itself to attack a convoy and returned without a scratch. On July 30, the Third Fleet again shelled Japan and remained in Japanese home waters for further action.

On August 5, it was announced that MacArthur's command had been extended to the Ryukyus and that a mighty invasion force was being forged under his direction for the final conquest of Japan. Twelve Japanese cities were warned by leaflets of impending destruction from the air.

The Death Blow.—On August 6, at 10:20 A.M., President Truman disclosed that an American airplane had dropped one atomic bomb on Hiroshima 16 hours before. This one 400-pound bomb—equal in explosive force to 20,000 tons of TNT—wiped out 60 per cent of the city of 375,000 inhabitants. The atomic bomb, tested very secretly in New Mexico on July 16, was the only entirely new weapon used in the Second World War. All others were merely improved versions of existing devices. (See ATOMIC BOMB.) The Japanese Cabinet met on August 7 to discuss the new situation.

On August 8, two more heavy blows fell: Another atomic bomb hit Nagasaki and Russia declared war on Japan. All Japanese hopes of prolonging the war disappeared. With the use of the atomic bomb, Japan's power to resist indefinitely was broken and the total destruction threatened by the Potsdam Declaration became a frightfully imminent reality. With Russia in the war, the Allies were sure to gain springboards for invasion much closer to the Japanese mainland than any they already held. As soon as the Red armies had advanced through Korea and Japanese-held Sakhalin, pincers could develop across the strait of Tsushima from Korea and across Perouse Strait from Southern Sakhalin. Without a navy, not even the Kamikazes could delay or block such an invasion and no land army could offer prolonged resistance in a country laid waste by atomic missiles.

On August 10, 93 days after Germany's capitulation, Japan sued for peace through Swedish and Swiss intermediaries, interpreting the Potsdam declaration as permitting the emperor to retains his prerogatives. On August 11, the Allies, including the Soviet Union, replied that they did not object to the emperor's retention of the throne provided he took orders from the Supreme Allied Commander. After some stalling, the Japanese government announced its acceptance of Allied terms on August 14. Gen. Douglas MacArthur, named as Supreme Commander for all Allied forces, accepted the official Japanese surrender on the United States battleship *Missouri* on September 2. Japanese forces in the far-flung theaters of war surrendered individually to local Allied commanders, thus reducing the empire to its home islands.

The Japanese reported 240,000 killed by aerial bombardment (90,000 of them by the two atomic bombs[1]), 420,000 injured (180,000 of them at Hiroshima and Nagasaki), and 9,200,000 homeless. B–29 attacks accounted for the destruction of 50.8 per cent of Tokyo, 31.2 per cent of Nagoya, 25.6 per cent of Osaka, 56 per cent of Kobe, 32.8 per cent of Kawasaki, and 44 per cent of Yokohama, with damage in smaller towns ranging up to almost 90 per cent. Japanese propagandists endeavored to describe Japan's defeat exclusively to the atomic bomb (and Emperor Hirohito's "noble desire" to save lives). They ignored the effect of Russian intervention as far as they could.

Russian Intervention.—It was secretly agreed at Yalta that the Soviet Union would enter the war against Japan within three months after V-E Day. This obligation was fulfilled. The Far Eastern Independent Red Banner armies, as they were called to distinguish them from the Russian forces in Europe and western Siberia, were very useful to the Allies even before they entered the war. Their very presence along the Manchurian, Korean, and Sakhalin borders immobilized the Japanese Kwantung armies, numbering almost 1,000,000 men, and prevented them from interfering in the battle of the Asiatic mainland.

The brief Russian Far Eastern campaign was more of an occupation than a war, although Moscow bulletins reported some heavy Japanese resistance, losses of almost 30,000 men, and the capture of about 450,000 prisoners. Three Russian armies, under the Supreme Command of Marshal Alexander M. Vasilevsky, took part in the campaign. The First Independent Red Banner Army, under Marshal Kyrill A. Meretskov, advanced from the region of Vladivostok in a twin drive to the Manchurian communication center of Harbin and—supported by the Red Banner Fleet—toward Rashin and Seishin in Korea. The Japanese Fleet was so thoroughly smashed that it could not even hold off the weak and obsolete Russian Navy. A separate group of Meretskov's forces occupied the southern part of

[1] This figure later was said to have risen to 156,000, 80 per cent of which was in Hiroshima.

Sakhalin, while parachute units carried out the occupation of strategic islands in the Kuriles. The Second Independent Red Banner Army, under General Purkajev, took off at Khabarovsk, moved against Harbin through the Sungari River valley, and continued to Mukden, Port Arthur, and Dairen. The Third (Transbaikal) Army, led by Marshal Rodion Y. Malinovsky, conqueror of Vienna and Budapest, drove south and west from Outer Mongolia, completing the occupation of Manchuria and cutting off the northern divisions of the Japanese Kwantung Army and Manchurian puppet forces. The Soviet Union concluded a treaty of friendship with the Chungking government, pledging nonintervention in Chinese internal affairs. United States efforts to promote an understanding between Chungking and Yenan forces—while supporting the former—tended to lessen the threat of a large-scale civil war in China.

It was agreed at the Moscow Conference late in December that both Russian and United States forces should be withdrawn from China soon.

Thus ended the military phase of the most stupendous, and the most destructive war the world has ever known. (See also AMPHIBIOUS WARFARE.)

ERWIN CH. LESSNER,
Major, Austrian Army; Author of Phantom Victory; Blitzkrieg and Bluff.

GENERAL MARSHALL'S REPORT

Some weeks before he retired as chief of staff of the United States Army, a position he had held for six years, General of the Army George C. Marshall submitted to the secretary of war his biennial report covering the period July 1, 1943, to June 30, 1945. Taken in connection with his report for the biennium July 1, 1941, to June 30, 1943, General Marshall has supplied one of the most authoritative and interesting histories of the Second World War that has yet appeared in print. In it, Great Britain and the Soviet Union are given full credit for refusal to accept what appeared to be inevitable defeat in the early days of the war, which General Marshall says, "was the great factor in the salvage of our civilization." To this he adds: "Of almost equal importance was the failure of the enemy to make the most of the situation. In order to establish for the historical record where and how Germany and Japan failed, I asked General Eisenhower to have his intelligence officers promptly interrogate the ranking members of the German High Command who are now our prisoners of war. The results of these interviews are of remarkable interest. They give a picture of dissension among the enemy nations and lack of long-range planning that may well have been decisive factors of this world struggle at its most critical moments. As evaluated by the War Department General Staff, the interrogations of the captured German commanders disclose the following:

"The available evidence shows that Hitler's original intent was to create, by absorption of Germanic peoples in areas contiguous to Germany and by the strengthening of her new frontiers, a greater Reich which would dominate Europe. To this end Hitler pursued a policy of opportunism which achieved the occupation of the Rhineland, Austria, and Czechoslovakia without military opposition.

"No evidence has yet been found that the German High Command had any over-all strategic plan. Although the High Command approved Hitler's policies in principle, his impetuous strategy outran German military capabilities and ultimately led to Germany's defeat. The history of the German High Command from 1938 on is one of constant conflict of personalities in which military judgment was increasingly subordinated to Hitler's personal dictates. The first clash occurred in 1938 and resulted in the removal of von Blomberg, von Fritsch, and Beck and of the last effective conservative influence on German foreign policy.

"The campaigns in Poland, Norway, France, and the Low Countries developed serious diversions between Hitler and the General Staff as to the details of execution of strategic plans. In each case the General Staff favored the orthodox offensive, Hitler, an unorthodox attack with objectives deep in enemy territory. In each case Hitler's views prevailed and the astounding success of each succeeding campaign raised Hitler's military prestige to the point where his opinions were no longer challenged. His military self-confidence became unassailable after the victory in France, and he began to disparage substantially the ideas of his generals even in the presence of junior officers. Thus no General Staff objection was expressed when Hitler made the fatal decision to invade Soviet Russia.

"When Italy entered the war Mussolini's strategic aims contemplated the expansion of his empire under the cloak of German military success. Field Marshal Keitel reveals that Italy's declaration of war was contrary to her agreement with Germany. Both Keitel and Jodl agree that it was undesired. From the very beginning Italy was a burden on the German war potential. Dependent upon Germany and German-occupied territories for oil and coal, Italy was a constant source of economic attrition. Mussolini's unilateral action in attacking Greece and Egypt forced the Germans into the Balkan and African campaigns, resulting in over-extension of the German armies which subsequently became one of the principal factors in Germany's defeat.

"Nor is there evidence of close strategic coordination between Germany and Japan. The German General Staff recognized that Japan was bound by the neutrality pact with Russia but hoped that the Japanese would tie down strong British and American land, sea, and air forces in the Far East.

"In the absence of any evidence so far to the contrary, it is believed that Japan also acted unilaterally and not in accordance with a unified strategic plan."

General Marshall closes this section of his report with the following comment: "Here were three criminal nations eager for loot and seeking greedily to advance their own self-interest by war, yet unable to agree on a strategic over-all plan for accomplishing a common objective."

The steps that led to Germany's defeat, as described by captured members of the High Command, are listed in General Marshall's report as follows:

(1) Failure to invade England; (2) the campaign of 1941 in the Soviet Union, where a sudden change in the weather brought disaster to Hitler's forces: (3) Stalingrad, where the Germans suffered a disastrous defeat; (4) invasion (Allied) of North Africa, which Hitler and Göring refused to believe would take place; (5) the Allied invasion of France, which all German headquarters expected and for the success of which they give credit to the Allied air arm; (6) the Ardennes counterattack, which was Hitler's



GERMANS SURRENDER TO MONTGOMERY MAY 4, 1945.
General of the Infantry Kinzel signing the terms of surrender while Field Marshal Montgomery stands watching.



On September 2, 1945, Japanese Foreign Minister Mamoru Shigemitsu signed formal document of surrender aboard U.S. *Missouri.*

personal conception, and which had Antwerp as its objective; and (7) the crossing of the Rhine, which the Germans believed could be held until the loss of the Remagen bridge exploded this hope.

General Marshall states that the War Department General Staff's analysis of the Japanese objectives were as follows:

"The Japanese, for many years, bolstered by a fanatical belief in divine guidance and their own spiritual and military supremacy, had planned the domination of the Far East and eventually the world. Japan in her inland empire was not self-sufficient. She required broader land areas and access to oil, rubber, and other raw materials if she were to become a major industrial world power. This principle of expansion was outlined in the 'Tanaka Memorial' purportedly a secret memorandum prepared for Hirohito by the Jap Premier in 1927. Authentic or not, it provided the pattern which Japan has followed, culminating in the great Pacific conflict.

"Strategically, Japan was well poised in 1941 to carry out her aims in Asia. All the major world powers who normally maintained the status quo in Asia were absorbed in the war in Europe. France had been overrun and eliminated. England was threatened by German invasion. The U. S. S. R. was attempting to repel a German invasion on her Western front reaching to the gates of the capital. The United States had become the Arsenal of Democracy, with major efforts directed toward the support and preservation of our European Allies.

"The Tripartite Pact had been signed, giving Japan a free hand in Asia. She had a large and relatively well-equipped army and a moderately good air force well trained by actual combat in China. She had obtained by forced agreement a staging area in French Indo-China. She had a fairly large navy especially strong in the transport craft available. She had accumulated by great national economy a good stockpile of strategic matériels at home for the initial effort and with each successive conquest she obtained new and important areas from which other supplies of materials could be drawn, such as oil, rubber, and metal. The Japanese mistakenly believed in the hearty co-operation of 'liberated' peoples of the so-called Greater East Asia Co-Prosperity Sphere with their huge labor pools. Japan considered herself ready to strike.

"Japan's objective was the conquest, consolidation, and eventual domination of the whole Far East. She intended to make her conquest in a rapid surprise drive which would overpower all resistance, to form an iron ring of outer defenses against which the spiritually inferior, pacifistic combination of opponents could beat themselves into weariness, while she consolidated her gains at leisure."

The report added that the best estimate of Japan's plan for the accomplishment of her objectives appears to have been the following:

(1) Neutralize or destroy the United States Pacific Fleet by an attack on Pearl Harbor; (2) drive rapidly south overcoming the Philippines and the Southwest and South Pacific Islands in order to cut sea routes of supply or attack from the East and gain the vast natural resources of the East Indies; (3) cut China's supply line from the west by an invasion of Burma; (4) form a flank by the seizure of the naval base of Singapore and the islands of Sumatra and Java; (5) isolate or possibly invade Australia; (6) invade the Hawaiian Islands via Midway; (7) invade the Aleutian Islands to form a northern flank, dependent on initial successes and retained momentum; (8) bring the American Northwest under aerial bombardment, raid our west coast aviation industries, and then seize critical areas; and (9) stimulate unrest to eventual revolution in India.

General Marshall adds that the Japanese strategic plan initially failed when she missed the opportunity of landing troops on Hawaii, capturing Oahu and the important bases there, and denying us a necessary focal point from which to launch operations in the Western Pacific. "There can be no doubt," said General Marshall, "that the greed and the mistakes of the war-making nations, as well as the heroic stands of the British and Soviet peoples saved the United States a war on her own soil. The crisis had come and passed at Stalingrad and El Alamein before this Nation was able to gather sufficient resources to participate in the fight in a determining manner."

The foregoing information is taken from the introduction to General Marshall's report. In succeeding pages he deals in more or less detail with the "Victory in Europe," its strategic concept, the fall of Italy, "Operation Overlord," or the invasion of Normandy and the liberation of France; the advance into Germany, and the final knockout of the Nazi forces. The report then takes up under the title "Victory over Japan," the war in the Pacific, covering each phase of it in more or less detail from its beginning with the sneak attack of Japan on Pearl Harbor to the final surrender of the Japanese aboard the battleship *Missouri* in Tokyo Bay. Final chapters carry such headings as "Occupation," "Our Weapons," "The Troops," "Price of Victory," "Beyond the Call of Duty," "Information and Recreation," "Army Management," "Demobilization," and "For the Common Defense." All together it is a magnificent report—one of the finest ever made by a high military officer of any country.

WORLD WAR CHRONOLOGY FOR 1945. The following chronological list presents a summary of the principal events of the Second World War and certain phases of its aftermath during the year 1945. Chronologies of the war for 1941, 1942, 1943, and 1944 will be found in THE AMERICANA ANNUALS for 1942, 1943, 1944, and 1945.

GENERAL

Jan. 18—Admiral Sir Harold M. Burrough appointed naval commander of Allied Expeditionary Forces under Gen. Dwight D. Eisenhower, succeeding late Admiral Sir Bertram Ramsey.

Jan. 22—Maj. Gen. Curtis E. Le May moved from 20th Bomber Command in India and China to head 21st Bomber Command in Marianas, replacing Brig. Gen. Haywood S. Hansell, Jr., who is returning from the latter command to Washington for undisclosed appointment.

Jan. 24—Lieut. Gen. Ben Lear, commander of U.S. Army Ground Forces in the U.S., appointed deputy commander in European theater.

Gen. Andrew G. L. McNaughton, Canadian defense minister, states that North Atlantic is alive with Nazi U-boats which are sinking Allied boats day by day.

Jan. 25—Secretary of War Henry L. Stimson announces assignment of Gen. Joseph W. Stilwell as commander of Army Ground Forces in the U.S., succeeding Lieut. Gen. Ben Lear.

Jan. 28—Admiral Chester W. Nimitz moves U.S. Pacific Command headquarters from Pearl Harbor to Guam.

Feb. 23—Turkey declares war on Germany and Japan.

Feb. 24—Premier Ahmed Maher Pasha of Egypt is shot and killed in Parliament after reading royal decree, declaring war against Germany and Japan.

Feb. 26—Gen. Douglas MacArthur turns civil government of Philippines over to their president, Sergio Osmeña.

Syria declares war against Germany and Japan, third nation of Middle East to take such action in 4 days.

Feb. 28—Korean provisional government in Chungking declares war against Germany.

Mar. 1—Most of Saudi Arabia goes to war with Germany and Japan.

Mar. 13—President Roosevelt nominates 9 lieutenant generals of army for temporary promotion to rank of full general: Joseph T. McNarney, Omar N. Bradley, Walter Krueger, Brehon B. Somervell, Carl Spaatz, George C. Kenney, Mark Clark, Jacob L. Devers, and Thomas T. Handy.

Mar. 22—Field Marshal Albert Kesselring replaces Field Marshal von Runstedt as supreme German commander on western front.

Mar. 27—Argentina declares war on Japan and Germany, directing declaration primarily against Japan on grounds that it attacked U.S. at Pearl Harbor; declaration of war against Germany justified by fact that Germany is Japan's ally.

Apr. 5—U.S. Joint Chiefs of Staff announce appointments of General of the Army Douglas MacArthur and Fleet Admiral Chester W. Nimitz as commanders, respectively, of all army and navy forces in entire Pacific theater for coming decisive phases of war against Japan.

Apr. 7—American Third Army troops find German gold reserve in Merkers salt mine, containing approximately 100 tons of gold bullion, plus $2,000,000 in American currency; 1,000,000 francs in French currency; 110,000 pounds in British currency; 4,000,000 Norwegian crowns; and lesser amounts in other currency.

Apr. 11—Spain breaks diplomatic relations with Japan because of Japanese troop brutalities against Spanish citizens in Battle of Manila.

Apr. 12—President Juan Antonio Rios and all Chilean Cabinet members sign decree announcing existence of state of belligerency between Chile and Japan.

Apr. 17—War Department announces redeployment of men and matériel from Europe to Pacific has begun.

Apr. 24—Lieut. Gen. Barney M. Giles, deputy commander of Army Air Forces and chief of air staff, named commanding general of the AAF in Pacific Ocean areas.

Apr. 26—Reich Marshal Hermann Göring, founder and commander of the Luftwaffe, resigns command; replaced by Col. Gen. Robert Ritter von Greim, who was promoted to field marshal immediately.

May 2—Grand Admiral Karl Doenitz, successor to Hitler, dismisses Joachim von Ribbentrop as foreign minister; appoints Count Lutz Schwerin von Krosigk as his successor.

May 6—Portugal severs diplomatic relations with Berlin on ground that there is no longer responsible German government.

May 10—René Pleven, French finance minister, informs President Truman that France has 2 divisions of 30,000 men ready to go into action against Japan.

May 14—First U-boat to surrender off American shores, surrenders 44 miles off Cape May, N.J.

May 15—Allies take over about 475 naval and merchant vessels, including transatlantic liner *Europa*, found in north German ports.

President Truman nominates Vice Admiral Richmond K. Turner for promotion to full admiral.

May 17—The 27,000-ton U.S. aircraft carrier *Franklin* reaches Brooklyn Navy Yard, completing 12,000-mile voyage after being severely damaged and suffering 832 of her crew dead or missing and 270 wounded, by direct hits from lone Japanese dive bomber in Inland Sea, 60 miles off coast of Japan, on March 19.

May 21—War Department announces that U.S. First Army is "on the move" from Europe to Pacific by way of U.S.

May 23—British Minister of Petroleum Warfare reveals that 20 pipelines were laid under English Channel from Britain to France to supply gasoline to Allied armies fighting in Germany. Achievement, known as Operation Pluto—or Pipelines Under the Ocean—was entirely British.

May 29—Vice Admiral Jisaburo Ozawa replaces Admiral Soemu Toyoda as commander in chief of Japanese combined fleet and as commander of naval escorts command.

June 10—Marshal Gregory K. Zhukov presents General Eisenhower and General Montgomery with Russia's highest award, jeweled Order of Victory.

June 12—King George of England makes General Eisenhower first American member of Order of Merit.

June 14—General Eisenhower receives Cross of Liberation from General de Gaulle, highest honor France can bestow.

June 18—Lieut. Gen. Simon Bolivar Buckner, Jr., Tenth Army commander on Okinawa, killed by Japanese artillery shell.

June 21—General MacArthur names Gen. Joseph W. Stilwell to lead U.S. Tenth Army, succeeding Lieut. Gen. Simon Bolivar Buckner.

June 22—Lieut. Gen. Roy S. Geiger succeeds Lieut. Gen. Holland M. Smith as chief field commander of Marine Corps.

July 10—Fleet Admiral Chester W. Nimitz announces that command of Army Air Forces in Ryukyus area has been transferred to General MacArthur, with Admiral Nimitz retaining command of Naval Air Forces, including Marine aviators in Ryukyus, and on Iwo.

July 12—Col. Oveta Culp Hobby, organizer and director of Women's Army Corps, resigns post effective September 3; succeeded by Lieut. Col. Westray Battle Boyce.

July 13—Italy declares war on Japan.

Supreme Headquarters Allied Expeditionary Forces in London comes to end.

July 14—Maj. Gen. Clare Chennault resigns as commander of U.S. Fourteenth Air Force in China; announces he will retire upon return to United States.

July 18—Lieut. Gen. George E. Stratemeyer arrives in Chungking and assumes command of U.S. Army Air Forces in China theater.

July 29—Famed British Eighth Army disbanded.

July 30—Dissolution of Mediterranean Allied Air Forces announced by Field Marshal Sir Harold R. L. G. Alexander.

Aug. 4—General MacArthur's Pacific army command is extended to Ryukyu Islands, thus for first time giving him control of conquered Japanese soil.

Aug. 5—British Admiralty reveals that phantom fleet of wooden warships, fitted out to resemble big Royal Navy battlewagons, hoaxed enemy reconnaissance aircraft for 2 years.

Aug. 8—Russia declares war on Japan.

United States offers to transfer to Japan ship to replace *Awa Maru* which United States acknowledged had been sunk by American submarine by mistake.

Aug. 9—Lieut. Gen. George E. Stratemeyer, U.S. Army Air Forces commander in China, announces appointment of Maj. Gen. Charles B. Stone, 3d, to succeed General Chennault as commander of U.S. Fourteenth Air Force.

Aug. 11—General of the Army Douglas MacArthur, commander in chief of U.S. Army forces in Pacific, designated Allied supreme commander to accept Japan's capitulation when it comes.

Aug. 19—American parachutists find Lieut. Gen. Jonathan M. Wainwright, Japanese prisoner for more than 3 years, at prisoner-of-war camp at Sian, 100 miles northeast of Mukden, Manchuria.

Aug. 21—Four of 8 airmen lost in attack on Tokyo led by General Doolittle in April 1942, are rescued by American parachutists, dropped on Japanese-occupied Peiping.

Aug. 27—General MacArthur announces Lieut. Gen. Robert L. Eichelberger will head Eighth Army in occupation of Tokyo area.

Sept. 5—President Truman nominates Lieut. Gen. Jonathan M. Wainwright for promotion to rank of general.

Australian Defense Minister John A. Beasley states U.S. naval intelligence officers had "cracked" Japanese naval cipher code just before Battle of Coral Sea.

Survivors of U.S. cruiser *Houston*, liberated from Japanese prison camps in Burma, tell horrifying stories of death of 20,000 out of 56,000 Allied prisoners, of starvation, disease, and fantastic cruelties.

Oct. 10—Typhoon levels virtually every structure in southern section of Okinawa, destroying planes, battering shipping, leaving 2,000 hospital patients without shelter, and scattering mountains of food, leaving only enough for less than week.

Oct. 12—Superfortresses rush tons of food to Okinawa's 150,000 isolated troops; 13 American sailors dead or missing, 100 soldiers injured as result of typhoon.

Oct. 14—Lieut. Gen. Barney M. Giles appointed commander, U.S. Strategic Air Forces in Pacific, succeeding Gen. Carl A. Spaatz.

Oct. 24—United Nations Charter comes into force after final ratification by 29 United Nations, including Russia, 29th to sign; protocol signed by Secretary of State Byrnes.

Nov. 20—President Truman appoints General of the Army Dwight D. Eisenhower to succeed General of the Army George C. Marshall as chief of staff of the army, and Fleet Admiral Chester W. Nimitz to succeed Fleet Admiral Ernest J. King as chief of naval operations. Gen. Joseph T. McNarney will succeed General Eisenhower, and Admiral Raymond A. Spruance will succeed Admiral Nimitz.

Dec. 15—Preparatory commission of United Nations Organization votes to place headquarters of new world peace organization in U.S.

Dec. 16—Big Three Foreign Ministers Conference opens in Moscow.

Dec. 24—Big Three foreign ministers in Moscow announce the peace treaty issue upon which the London Conference failed has been settled along lines suggested in Secretary Byrnes' compromise, and agree to call 21-nation peace conference by May 1, 1946, to consider peace treaties with Italy, Rumania, Bulgaria, Hungary, and Finland.

Dec. 26—Among decisions at Big Three Conference is Russia's agreement to join Far Eastern Commission in return for 4-nation Japanese Control Council with each member retaining veto power.

Big Three Foreign Ministers Conference in Moscow ends.

Lieut. Gen. Le Roy Lutes is appointed commander

of Army Service Forces, succeeding Gen. Brehon B. Somervell.

Dec. 28—Admiral John H. Towers designated as commander in chief of the Pacific Fleet and Pacific Ocean areas, succeeding Admiral Raymond A. Spruance, who becomes president of the Naval War College.

EUROPEAN THEATER

Jan. 1—American Third Army launches third attack on southern flank of German salient in Belgium north of Bastogne.

Jan. 4—Berlin radio states that present German drive has caused General Eisenhower to shelve all plans for Allied winter drive into the Reich.

Canadians capture Conventello and continue to advance in eastern Po Valley.

Jan. 5—Russians crush big German drive northwest of Budapest.

Jan. 7—Canadian troops trap several hundred Germans in swamplands north of Ravenna, Italy.

Jan. 10—Germans retreat all along western front, saving most of their men and equipment.

Jan. 13—Red Army opens winter offensive in south central Poland, advancing 25 miles on 37-mile front to within 71 miles of industrial German Silesia.

Jan. 16—Fighting on home ground, Norwegian troops advance 80 miles to join Russian forces in liberated east Finnmark, capturing Nazi air base at Banak.

Jan. 17—Warsaw captured by Soviet and Polish troops.

Jan. 19—Red Army reaches border of German Silesia, captures Polish cities of Lodz, Krakow, and Tarnow, and advances 31 miles inside East Prussia.

Jan. 24—German troops withdraw from western front.

Jan. 26—Red Army troops advance to Bay of Danzig, completing encirclement of East Prussia.

Jan. 29—American troops break back into Germany from Ardennes bulge south of St. Vith.

Feb. 1—U.S. First and Third armies liberate virtually all of Belgium and Luxembourg from Germans.

Feb. 2—American 2d Division penetrates thickest part of Siegfried Line; American and French troops reach center of Colmar, third largest city of Alsace.

Feb. 5—Red Army captures Zellin, Germany, within 33 miles of capital. Marshal Zhukov's drive to Oder River marks 280-mile advance in 23 days.

First concerted offensive in 3 months made against German defenses below Bologna, Italy, gain being 500 to 600 yards.

U.S. Third Army, smashing through Siegfried Line, hits key communications center before Prüm, Germany, and seizes control of two vital Roer River dams.

Feb. 7—Gen. George S. Patton's Third Army invades Reich at 10 points; strikes across Sauer and Our rivers.

Feb. 8—Canadian First Army, part of Field Marshal Bernard L. Montgomery's Twenty-first Army Group, starts offensive against northern end of Siegfried Line.

Feb. 10—Germans dynamite Schwammenauel Dam, flooding Roer River valley.

Feb. 12—U.S. Third Army captures key center of Prüm.

Feb. 13—American 92nd Division forced back to original position south of Strettoia, Italy, suffering many casualties and loss of equipment.

Budapest, Hungary, falls to Red Army after 50-day siege. Troops killed or captured number 159,000, and included commander of Germans, General Pfeffer-Wildenbruch with his staff.

Feb. 16—Hitler proclaims martial law for Reich; recent reports state that 3,400 Germans were taken prisoner in fall of Budapest, making total casualties in Battle of Budapest 181,850 killed or captured.

Feb. 19—Scottish troops of Canadian First Army virtually clear town of Goch.

Feb. 23—Russian troops complete conquest of Polish fortress city of Posen and seize Pomeranian rail hub of Arnswalde.

Feb. 24—U.S. Third Army advances 4 miles beyond Roer River, capturing 21 German towns and villages; First Army captures half of Dueren.

Feb. 27—Canadian First Army captures Calcar.

Mar. 3—U.S. Ninth and Canadian First armies join in the Rhine-Meuse corridor and push toward Rhine.

Mar. 4—Allies announce landing of troops on Pisopi (Tilos) Island in Dodecanese group, night of February 28, 35 miles from Turkish coast and 25 miles northwest of Rhodes.

Mar. 5—U.S. Fifth Army in Italy occupies strategic Mount Della Croce, west of Pistoia-Bologna highway.

Mar. 6—Cologne, fourth largest city in Germany, falls to U.S. First Army; U.S. Third Army gains 30 miles, reaching point 20 miles from Coblenz.

Mar. 7—U.S. First Army crosses the Rhine at Remagen, the first time an invading army had crossed the river since 1805.

Mar. 8—U.S. First Army crosses Rhine River between Cologne and Coblenz; establishes bridgehead on eastern bank; to the north other First Army troops enter Bonn.

Mar. 9—Reports from Paris reveal Allied armies have captured 1,009,657 German prisoners since first landings in Normandy, June 6, 1944.

New American army, Lieut. Gen. Leonard T. Gerow's Fifteenth, is added to General Bradley's forces, making more than 1,000,000 Americans under that leader.

U.S. First Army completes capture of Bonn, 12½ miles north of Rhine bridgehead at Remagen.

Mar. 17—Third Army overruns Coblenz, historic German city.

Ludendorff (Remagen) railroad bridge, spanning Rhine between Remagen and Erpel, collapses 10 days after U.S. First Army stormed across it after thwarting Nazi efforts to blow it up, causing worst episode of accidental Allied casualties of the war.

Mar. 19—More than 1,000 Third Army tanks sweep through rapidly diminishing Saar-Moselle-Rhine triangle.

Mar. 20—The 4th Armored Division of U.S. Third Army captures Worms, 19th Infantry Division captures Mainz, and 10th Armored Division clears railroad center of Kaiserslautern; Seventh Army troops capture Saarbrücken and Zweibrücken.

Mar. 21—U.S. Third Army enters Ludwigshafen on Rhine; Seventh Army, now linked with Third at 2 points, enters Homburg.

Mar. 22—U.S. Third Army establishes bridgehead over Rhine 4½ miles north of Ludwigshafen.

Mar. 24—General Montgomery's British Second Army and U.S. Ninth Army push across Rhine at 4 places from south of Wesel north to Rees.

Mar. 28—Russians capture Baltic port of Gdynia.

British Second Army makes breakthrough on Westphalian Plain, reaching Dorsten.

Mar. 30—Russian troops capture Baltic naval base of Danzig, seizing 45 German submarines.

Apr. 1—German radio announces formation of Werewolves, guerrilla organization to wage suicide war on Allied soldiers and Germans who collaborated with them.

Apr. 3—The 11th Armored Division of British Second Army enters Osnabrück, 63 miles from Bremen.

In first amphibious operation of Italian campaign since Anzio, British troops land on east shore of Comacchio Lagoon.

Apr. 4—Red Army captures Bratislava, Slovak capital, while their southern offensive pushes last Germans from Hungarian soil.

Apr. 5—*Schwarze Korps*, Nazi paper run by Heinrich Himmler, Gestapo chief, reports that Germany now is "only days or perhaps weeks from absolute collapse."

Apr. 9—Soviet troops capture Königsberg.

Allies advance along 300-mile front from Bremen to Stuttgart.

Apr. 10—British Eighth Army in Italy launches spring offensive, crossing Senio River on wide front in general vicinity of Lugo.

Apr. 12—British Eighth Army troops cross Santerno River between Tossignano and Commacchio Lagoon, and advance on 30-mile front.

Apr. 13—Red Army completes occupation of Vienna.

Apr. 15—Polish troops of British Eighth Army capture Imola, 20 miles from Bologna.

Apr. 16—Hitler issues order of day asking Germans to drown Russians in sea of blood and hold Berlin at all costs.

U.S. Fifth Army captures Vergato, 17 miles southwest of Bologna.

Apr. 18—U.S. Ninth Army captures Magdeburg; Third Army smashes into Czechoslovakia near Asch, cutting Germany in two; Seventh Army invades Nürenburg; French troops take Freudenstadt and Oberkirch and reach Dinglingen.

British Eighth Army captures Argenta.

Apr. 19—U.S. First Army captures Leipzig and Halle.

Apr. 20—U.S. Fifth Army smashes into Po Valley near Bologna; British Eighth Army moves up Adriatic coast to within 8 miles of Ferrara.

British Admiralty and U.S. bombing headquarters jointly announce first use by Eighth Air Force of rocket-propelled bomb with extreme penetrative and explosive power against E-boat pens at Ijmuiden, the Netherlands, on February 10 and March 14.

Apr. 21—Red Army enters Berlin.

American, Polish, and Italian troops of U.S. Fifth and British Eighth armies capture Bologna.

Apr. 24—U.S. Fifth Army troops cross Po River at several unrevealed points, capturing Modena; British Eighth Army occupies Ferrara.

Apr. 25—U.S. First Army meets with First Ukrainian Army at Torgau on Elbe, 28 miles northeast of Leipzig.

Russians complete encirclement of Berlin.

Apr. 26—British troops capture Bremen; U.S. Third Army captures Eger in Czechoslovakia, enters Regensburg, crosses Danube on both sides of city, and takes Kelheim to the west; Seventh Army crosses Danube to take Genderkingen; French capture Constance at the Swiss border.

General Eisenhower issues direct order halting Ninth Army at Elbe to await arrival of Russian forces from the east, thereby leaving capture of Berlin to Red Army; it is also understood that U.S. First and Third, and British and Canadian armies received similar orders to halt at Elbe.

Fifth and Eighth armies press toward Brenner Pass

after having driven across Po Valley and captured cities of Verona and Parma.

Soviet troops capture Baltic port of Stettin.

Apr. 27—U.S. Fifth Army enters Genoa.

Apr. 28—U.S. Seventh Army sweeps over Austrian frontier at two points; Third Army takes Augsburg.

In Italy, Allied troops seize Bergamo, 30 miles from Swiss border and 125 miles from Brenner Pass; take Brescia, 30 miles southeast of Bergamo.

Apr. 29—U.S. Fifth Army enters Milan, Italy; reaches Como and north end of Lake Garda; British Eighth Army captures Venice, after seizing Mestre, 5 miles to northwest.

Apr. 30—U.S. Seventh Army captures Munich; reaches point 13 miles from Innsbruck; U.S. Ninth Army makes second junction with Red Army forces at Apollensdorf on Elbe; First Army makes contact with Russians around Wittenberg.

Dachau, Germany's most dreaded extermination camp northwest of Munich, captured by Americans, freeing 32,000 inmates.

Gen. Mark W. Clark states that German ground forces in Italy have been virtually eliminated, as Turin, 30 miles from French border, falls to Allies.

May 1—Hamburg radio announces Hitler's death during the afternoon; Grand Admiral Karl Doenitz, German navy chief, proclaims himself the new Führer by Hitler's appointment.

British Eighth Army's 2d New Zealand Division meets with Marshal Tito's forces at Monfalcone, Italy, after 55-mile advance.

May 2—Red Army forces complete occupation of Berlin and win Baltic ports of Rostock and Warnemuende.

British troops seize Hamburg, Lübeck, and Wismar, 30 miles from Russians at Rostock.

War for Italy ends when hostilities cease under unconditional surrender signed by Germans on April 29 at Allied Headquarters in Caserta; terms apply to all northern Italy to Isonzo River in northeast and to Austrian provinces of Vorarlberg, Tyrol, and Salzburg, and portions of Carinthia and Styria.

May 3—Doenitz government of Germany moves to Copenhagen, Denmark.

Admiral Doenitz declares Prague, Czech capital, open city.

American, British, and Canadian fliers sink or damage more than 64 ships off Baltic coast of Schleswig-Holstein, carrying Germans attempting to flee from Reich toward Denmark and Norway.

Port of Trieste formally occupied by British Eighth Army's New Zealand 2d Division which joined Yugoslav Partisans there after 220-mile drive in 23 days.

May 4—Anglo-Greek forces raid German garrisons in Dodecanese Islands.

May 5—All German forces in Netherlands, Denmark, and northwestern Germany, including Helgoland and Frisian Islands, surrender to Marshal Montgomery.

U.S. Seventh Army drives through Brenner Pass to form junction with U.S. Fifth Army, capturing Berchtesgaden, Salzburg, and Innsbruck; U.S. Third Army advances to within 35 miles of Pilsen, Czechoslovakia.

Southern flank of German Army facing western Allies collapses when Army Group G surrenders to Gen. Jacob L. Devers and his Sixth Army Group.

Russians capture German naval base of Swinemüde, last big German Baltic port.

May 6—U.S. Third Army captures Pilsen and Karlsbad in Czechoslovakia, in only fighting on old western front.

May 7—Germany surrenders unconditionally to western Allies and Soviet Union at 2:41 A.M. French time (May 6, 8:41 P.M. Eastern wartime), as surrender is signed at Reims, France, for Germany by Col. Gen. Gustav Jodl, new chief of staff of the German Army; for Soviet Union by Gen. Ivan Susloparoff; for the United States, Great Britain, and other Allied nations by Lieut. Gen. Walter Bedell Smith, chief of staff for General Eisenhower; and for France by Gen. François Sevez.

Grand Admiral Karl Doenitz orders all German U-boats to cease fighting.

May 8—Germany's surrender is formally ratified in Berlin; peace in Europe comes technically at 12:01 A.M. May 9 (6:01 P.M. May 8, Eastern wartime).

May 10—Moscow announces that German forces in Czechoslovakia have refused to surrender to Russian troops and that bitter fighting was raging there more than 48 hours after official end of all hostilities.

May 13—Russian armies mop up German stragglers in Czechoslovakia, taking over 1,000,000 prisoners, including 91 generals.

Air War Over Europe

Feb. 2—Headquarters announces that American and British planes dropped 82,014 tons of bombs on German targets in January—most of them on Germany proper. U.S. Eighth Air Force, based in Britain, dropped 39,100 tons; U.S. Fifteenth Air Force, based in Italy, 6,164 tons; and British planes, 36,750 tons.

Feb. 12—British Air Ministry announces total weight of bombs and explosives dropped on Berlin since beginning of war to be 62,000 tons.

Mar. 1—U.S. heavy bombers dropped more than 51,000 tons of bombs on Germany in February. Losses for the month were 94 bombers, an all-time low, and 108 fighters.

Mar. 4–5—In first attacks since June 13, 1944, German planes raid Great Britain.

Mar. 12—London reports 484 civilians killed and 1,151 injured in Britain during February by enemy air action. January figures were 586 and 1,651.

Mar. 14—RAF drops world's biggest bombs, 11-ton missles, 25 feet 5 inches long, on German main line rail viaduct at Bielefeld, north of Ruhr, in first attack with latest "secret weapon."

Mar. 26—London report states that at least 800 Netherlands civilians were killed, 1,000 injured, and 20,000 left homeless in bombing by error at The Hague, German-occupied capital of the Netherlands, by British planes on March 3.

Apr. 1—Headquarters announces that U.S. Eighth Air Force, based in Britain, dropped a record 73,500 tons of bombs on Germany in March, flew 44,900 sorties (28,500 by heavy bombers) and sustained a record low loss rate of about .5 per cent (138 bombers and 99 fighters). Fighters shot down 250 German planes in combat and destroyed 129 on the ground. Bombers gunners downed 31 Luftwaffe planes. RAF planes dropped 75,600 tons of bombs during the month, also a record.

Apr. 4—London dispatches report a new American warplane, the "droop-snoot" P-38, has been leading air attacks since May 1944. The plane, a fighter, carries a Norden bombsight and directs bombing with accuracy at a speed 50 per cent greater than that of regular bombers.

Apr. 17—London reports destruction during the day by Allied fliers of at least 440 additional German planes, bringing the April total to 4,139.

Apr. 19—RAF drops 12,000-pound volcano bombs on German island fortress of Helgoland.

Apr. 26—Prime Minister Winston Churchill tells British House of Commons that the German V-2 (huge stratospheric) bombs have stopped falling on England. Attacks began Sept. 8, 1944, the day after attacks by the smaller V-1 robot bombs ended, and lasted until Mar. 27, 1945. A total of 1,050 V-2 bombs reached England, killing 2,754 persons and seriously wounding 6,523.

May 23—Paris headquarters reports that in 19 months of operations against Germany the U.S. Ninth Tactical Air Force made nearly 400,000 flights and destroyed 4,228 German planes against a loss of 2,944 planes.

June 16—The British Air Ministry announces that the RAF lost 16,385 planes in the European and Mediterranean theaters up to V-E Day. The Bomber Command lost 9,163 aircraft. Planes lost in European theater totaled more than 10,000.

Sept.—The *U.S. Stratigical Bombing Survey,* published in September, summarized the air war over Europe as follows:

	U.S. Army Air Forces	Royal Air Force[1]
Tons of bombs dropped (short tons)	1,461,864	1,235,609
Bomber sorties	754,818	687,462
Fighter sorties	991,750	1,695,049
Claimed enemy aircraft destroyed and probably destroyed	35,783	21,622
Bomber planes lost	9,949	11,965
Fighter planes lost[2]	8,420	10,045
Personnel lost in action	79,265	79,281
Bomber planes assigned to combat units[3]	March 1945 7,177	April 1945 6,956
Fighter planes assigned to combat units[3]	May 1945 6,203	August 1944 7,728
Personnel assigned to combat units[3]	August 1944 619,020	July 1944 718,628

[1] All Royal Air Force statistics are preliminary or tentative.

[2] Includes fighter bombers and reconnaissance planes.

[3] Maximum strength of each air force.

Pacific Theater

Jan. 9—American troops land on Luzon, largest of Philippine Islands.

Jan. 21—Pacific Fleet carrier planes bomb Okinawa Island, naval base in Ryukyu Archipelago, within 320 miles of Japan.

Jan. 29—On Bougainville, Australians advance 40 miles northward along coast in direction of Buka Passage.

Superfortresses heavily bomb Iwo Island.

Jan. 30—U.S. Rangers under Lieut. Col. Henry Mucci and Filipino guerrillas led by Maj. Robert Lapham rescue 513 survivors of Corregidor and Bataan "death march" from Cabanatuan prison camp near Cabu, Luzon. Of the rescued, 486 are Americans, 23 British, 3 Netherlanders, and 1 Norwegian.

Jan. 31—Gen. Douglas MacArthur announces new American landing on west coast of Luzon Island, the Philippines.

Feb. 1—Superfortresses of 20th Bomber Command attack Singapore, destroying floating drydock.

Feb. 6—General MacArthur announces fall of Manila and liberation of 5,000 prisoners, 4,000 of whom are Americans. Cavite Navy Yard and island of Corregidor remain in enemy hands.

Feb. 7—General MacArthur enters Manila informally; visits Santo Tomas camp, receiving ovation.

Feb. 11—Australian troops in Bougainville, Solomon Islands, drive Japanese from Simba Ridge. Ami, New Guinea, is occupied by Australians. In Java, Mendalin Siman power station is smashed.

Feb. 14—U.S. 11th Airborne Division seizes Cavite naval base in Luzon and clears Nichols Field; Japanese still control Manila Bay; Japanese casualties since January 9, 68,000; American, 9,683.

Feb. 16—After 3 years Corregidor is again in American hands as 503d Airborne Regiment drops parachute troops on Topside area and amphibious landing is made by Gen. Charles P. Hall's 11th Corps.

Feb. 18—Tokyo reports American troops have made successful landing on Iwo Island, 750 miles from Tokyo, and engage in fierce fights with Japanese.

Over 7,000 American and Filipino troops freed as American troops sieze Philippine General Hospital in Ermita section of Manila.

Feb. 19—Americans in Manila capture Fort McKinley.

Feb. 22—Americans reach top of Mount Suribachi on Iwo as American casualties reach 5,372 as against 1,222 Japanese killed.

Feb. 24—Last remnant of Japanese garrison in Manila destroyed.

American troops in Philippines capture Japanese internment camp at Los Banos, 35 miles southeast of Manila, freeing 2,146 prisoners.

Mar. 1—Tokyo reports that 600 American carrier planes attacked Okinawa naval base in Ryukyus for 6 hours.

Mar. 2—In Philippines, American troops seize Lubang Island; other troops achieve practical control of Palawan, westernmost of Philippines.

Mar. 3—B-29's hit Tokyo for 11th time.

Mar. 9—Fleet of 300 B-29's pour over 1,000 tons of incendiaries on 15 square-mile-area in heart of Tokyo.

Mar. 10—American Eighth Army troops land on Mindanao, second largest of Philippine islands.

Mar. 12—American troops capture Zamboanga, city on western tip of Mindanao.

Reconnaissance photographs show that 786 acres of Nagoya were burned out as result of attack by 300 B-29's the day previous.

Mar. 13—B-29's from Saipan, Tinian, and Guam drop more than 2,000 tons of explosives on Osaka, Japan's second city.

Mar. 14—United States flag formally raised over Iwo although fighting continues unabated in northern sector and in small pocket in northeastern part of island; Japanese dead in 23-day Iwo battle estimated at 20,000.

American Eighth Army troops, in night landings, occupy Philippine Islands of Romblon and Simara in Sibuyan Sea, 60 miles east of Mindoro.

Mar. 16—Pacific Fleet Headquarters announces end of organized Japanese resistance on Iwo and reveals Marines lost 4,189 officers and men killed, 15,308 wounded, and 441 missing, bringing total to 19,938.

Over 300 B-29's drop 2,500 tons of incendiaries on 5 square-mile-area of Kobe, Japan's principal port.

Mar. 18—More than 300 B-29's drop 2,000 tons of incendiary bombs on Nagoya, Japan's third largest city. Carrier-based planes of Pacific Fleet hit great Yawata Steel Works and Nagasaki on island of Kyushu.

U.S. Army and Navy planes drop 1,000 tons of explosives on front stretching from Borneo to Formosa, with heaviest tonnage dropped on Heito and Okoyma air bases in Formosa, and Baguio, Philippines summer capital.

British Information Services announce that submarines of British Far Eastern Fleet in last 8 months have sunk total of 274 Japanese ships.

Mar. 19—American conquest of Leyte and Samar islands in Philippines costs Japanese 136,173 casualties. In same campaign, American losses were 11,245 up to Dec. 27, 1944.

U.S. Navy's hunt for Imperial Japanese Fleet ends when carrier planes catch Japanese warships in Inland Sea and damage 15 to 17 warships, sink 6 freighters, and destroy nearly 500 Japanese planes.

Mar. 20—U.S. Eighth Army's 40th Division captures Iloilo, Panay capital.

Lieut. Gen. George C. Kenney, commander of Allied aviators from Solomons to Philippines, states that his men and carrier fliers had positively destroyed at least 10,000 Japanese aircraft since Sept. 1, 1944, and that the Japanese are no longer an air threat.

Mar. 23—Australian troops make second amphibious landing within week on northwestern end of Soraken Peninsula, Bougainville Island.

Mar. 27—U.S. Eighth Army troops capture Cebu, second largest city in the Philippines.

Mar. 29—Admiral Nimitz discloses that Royal Navy has joined Pacific Fleet in attacking Ryukyus.

Mar. 30—American troops invade Negros, last big island held by Japanese in Philippines.

Mar. 31—In central Philippines, American forces seize Bacolod, provincial capital of Negros Island.

Fifth Fleet continues close-range bombardment of Okinawa in Ryukyus; Admiral Nimitz reports 18 Japanese ships have been sunk by carrier planes in this area, 14 probably destroyed, and 15 damaged; 150 Superfortresses blast Kyushu and Honshu islands in southern Japan.

Apr. 1—In largest amphibious operation of Pacific war (an armada of more than 1,400 ships), new U.S. Tenth Army invades Okinawa, main island of Ryukyus, 362 miles from Japan.

The 14th corps of U.S. Sixth Army lands at Legaspi on southeastern tip of Bicol Peninsula, securing city and nearby airfields and completing encirclement of Japanese troops in southern Luzon.

Apr. 4—The 40th Division of U.S. Eighth Army invades Masbate Island northwest of Leyte, 11th largest island in Philippines and 36th island to be invaded.

Apr. 7—U.S. Fifth Fleet carrier planes sink 6 Japanese warships, including most powerful remaining unit, 45,000-ton battleship *Yamato*, 2 light cruisers, and 3 destroyers, in east China Sea, 50 miles southwest of Kyushu.

American troops virtually complete conquest of Mindanao in Philippines.

Apr. 9—American troops land at Jolo, old capital of Sulu sultans, capture town's airfield, and take complete control of Sulu Archipelago, southernmost group of Philippines.

Apr. 11—AmericaL Division lands unopposed on Bohol Island in Visayan Islands, last major island of Philippines, between southern ends of Cebu and Leyte islands.

Apr. 16—Admiral Mitscher's carrier task force pilots destroy 242 Japanese planes in Okinawa area. American army troops land on Ie Island off northwest tip of Okinawa, quickly seizing airfield there.

Apr. 19—American troops invade Balabac Island, 45 miles north of Borneo.

Apr. 21—Fighting ends on Ie Island, where Ernie Pyle was killed April 18.

Apr. 27—Baguio on northern Luzon falls to Americans.

May 2—Australian announcement confirms Japanese reports that Allied troops have invaded Borneo, landing on 10-square-mile island of Tarakan on northeast coast.

May 6—Australian and Netherland troops capture center of Tarakan city and take full possession of airfield.

May 13—Australian 6th Division captures Wewak, last Japanese foothold on northern coast of New Guinea.

May 16—Over 500 Superfortresses for second time in 3 days drop nearly 3,500 tons of incendiaries on southern half of Nagoya, Japan's third city and major empire production center.

May 20—General MacArthur's communiqué reveals total Japanese dead or taken prisoner for entire Philippine campaign is 369,818, dating from Oct. 20, 1944, when Americans landed on Leyte.

May 25—About 500 Superfortresses from Marianas drop 4,000 tons of incendiary bombs on Tokyo for second time in 48 hours.

May 26—About 500 Superfortresses carry out 2 attacks on Tokyo, causing great destruction, and damaging Imperial Palace; 19 Superfortresses lost.

May 27—Admiral Nimitz announces that since Dec. 7, 1941, U.S. submarines have sunk 1,119 Japanese ships, totaling 4,500,000 tons.

May 28—More than 450 Superfortresses make gigantic attack on Japanese industries in Yokohama, dropping 3,200 tons of incendiaries.

May 29—Maj. Gen. Curtis E. Le May, commanding general of B-29's operating from Marianas, announces that 51 square miles of Tokyo were laid waste in 6 separate attacks.

May 31—Over 450 B-29's, escorted by P-51 Mustang fighters, drop 3,000 tons of incendiaries on industrial concentrations in Osaka, Japan's second largest city.

June 5—Typhoon strikes Third Fleet between Okinawa and Philippines, damaging at least 21 ships, including 5 aircraft carriers, 3 battleships, 4 cruisers, and 9 destroyers.

June 6—More than 400 fighter-escorted B-29's again attack Osaka, Japan, dropping 2,500 tons of high explosives and incendiary bombs on arsenal and business and industrial areas.

June 11—General MacArthur reports Australian troops made second invasion of Borneo, pushing ashore at 4 points in northwestern section around Brunei Bay on June 10.

June 14—Australians capture Brunei in northwest Borneo.

June 15—Navy reveals that U.S.S. *Saratoga*, oldest and biggest aircraft carrier in U.S. Fleet, was badly hit by Japanese planes at Iwo Island on February 21.

Osaka, Japan, hit by 3,000 tons of incendiaries dropped by 520 Superfortresses.

June 19—About 450 American Superfortresses drop 3,000 tons of incendiary bombs on Japan's industrial centers of Shizuoka, Toyohashi, and Fukuoka (on Kyushu

Island), bringing to 13 number of Japanese cities hit by mass incendiary attacks.

June 21—Admiral Nimitz reports end of organized resistance on Okinawa, most bitterly fought and costliest battle in the Pacific war.

June 23—Australian 9th Division troops on Borneo seize great Seria oil fields without opposition, after 60-mile advance southwest down island's north coast.

June 24—Hundreds of American and British planes, of at least 6 air forces, loose 1,000 tons of bombs on 16 Japanese targets over 5,000-mile front from Borneo to Kuriles.

June 25—About 500 B-29's hit 10 Japanese aircraft ammunition and ordnance factories on Honshu Island, 5 in Nagoya area, 2 in Osaka sector, 2 in Gifu area, and 1 at Akashi.

June 26—Australians complete reconquest of West Borneo oil-fields by capturing Miri.

June 27—Admiral Mitscher's flagship, 27,000-ton carrier *Bunker Hill,* arrives (under her own power) at Puget Sound for repairs, after 2 Japanese suicide planes crashed on her deck on May 11, killing 373 and wounding 264.

June 30—Admiral Nimitz announces American occupation of Kume Island, 50 miles west of Okinawa; no opposition.

July 1—Australian troops land at Balikpapan, Netherlands Borneo, from largest Allied fleet of warships and transports to assemble in Makassar Strait since Luzon invasion.

July 3—Far Eastern Air Force, under Gen. George C. Kenney, makes first attack on Japanese islands from Okinawa bases. Gen. Carl A. Spaatz named to command newly created Strategic Air Force in Pacific, composed of Eighth under Gen. James H. Doolittle, and Twentieth under Maj. Gen. Curtis E. Le May.

July 5—General MacArthur announces liberation of entire Philippines; states campaigns there can be considered closed. He reveals that of 23 Japanese divisions, totaling 450,000 men, only 30,000 remain for guerrilla fighting, thus reducing foe to practical impotence.

July 6—U.S. Navy permits Japanese hospital ship to take 974 ill and wounded Japanese off Wake Island.

July 8—Japanese suicide planes damage 3 British carriers off Sakishima Islands; British guns shoot down 140 Japanese planes in 2 months of operations.

July 9—Netherlands forces make 2 landings along northern shore of Balikpapan Bay in Borneo as Japanese try to stem Australian advance with flaming oil drums.

Over 1,500 American planes, 700 of them from Admiral Halsey's fleet of at least 26 ships, hit Japanese home islands in most co-ordinated aerial blow of Pacific war.

July 10—Over 1,000 carrier-based planes of Admiral Halsey's Third Fleet strike airfields in Tokyo area, without opposition; 173 Japanese planes and 31 ships destroyed or damaged in day's operations.

Australians make new river landing on Borneo, winning complete control of Balikpapan Bay.

July 11—U.S. Navy report states that since Pearl Harbor, navy and marine aircraft have destroyed more than 17,000 enemy planes at cost of 2,700 of their own; army fliers have wrecked 10,173 more and lost 4,226.

July 13—U.S. warships shell Japanese homeland 275 miles north of Tokyo for first time in war.

July 14—U.S. Third Fleet continues attack on Japan.

July 16—Carrier task force of British Pacific Fleet joins U.S. Third Fleet attack on targets in Tokyo area; combined force commanded by Admiral Halsey.

In one year from June 1944, Superforts flew 261 missions, dropped nearly 90,000 tons of bombs, wiped out 127 square miles of 26 major Japanese cities, and destroyed 919 Japanese planes, losing total of 291 B-29's.

July 18—For first time, airmen from European theater in about 350 planes from Okinawa bases smash airfields, communications, and industries on home island of Kyushu.

July 22—First American soldiers from European front reach Philippines.

July 23—More than 1,000 fighters, dive-bombers, and torpedo bombers from fast carriers of Admiral Halsey's Third Fleet attack Japan's greatest naval base at Kure in Honshu on Inland Sea and other military installations in area. American warships enter Sagami Bay, sail into Suribachi Bay in Kuriles to shell Paramushiro shore installations, and sweep Japanese shipping off China's coastal province of Chekiang.

More than 600 Superfortresses, in blow co-ordinated with carrier strike on Kure, drop nearly 4,000 tons of demolition bombs on 80 square miles of Osaka-Nagoya area.

July 25—Admiral Nimitz announces 2-day toll of carrier strike against Japanese naval bases in Inland Sea area on southern Honshu and northern Shikoku as 20 warships, including 3 battleships damaged, 84 merchant vessels sunk or damaged, and 209 Japanese aircraft destroyed or damaged.

July 26—President Truman, Prime Minister Churchill, and Gen. Chiang Kai-shek draw joint declaration calling on Japanese government and people to surrender unconditionally or face "prompt and utter destruction."

July 27—In 700 sorties over Japanese home islands, Okinawa-based planes of Far East Air Forces score direct hits with heavy bombs on Japanese battleship *Haruna,* and on 2 enemy aircraft carriers, cruiser, 7 freighters, subchaser and number of small ships.

July 29—Japanese reject surrender ultimatum issued by United States, Great Britain, and China as Premier Kantaro Suzuki declares that "so far as the imperial government of Japan is concerned it will take no notice of the proclamation."

Aug. 3—Far East Air Forces reveal in Manila that during first 7 months of 1945 they destroyed 2,846,932 tons of Japanese shipping and 1,375 planes.

Aug. 6—President Truman and War Department announce that an atomic bomb, possessing more power than 20,000 tons of TNT, destructive force equal to load of 2,000 B-29's, and more than 2,000 times blast power of what previously was world's most devastating bomb, was dropped August 5 (Aug. 6 Japanese time) on Japanese city of Hiroshima, important army center on Honshu.

Aug. 7—Report based on study of photographs discloses that 60 per cent of Hiroshima was destroyed by single atomic bomb dropped August 5. Hiroshima had a built-up area of 6.9 square miles and a prewar population of 343,000.

Aug. 8—General Spaatz announces that a second atomic bomb has been dropped on Nagasaki, Japan's 12th largest city.

Japanese radio, reporting results of atomic bombing of Hiroshima, states that "practically all living things, human and animal were literally seared to death."

Russia declares war on Japan and begins offensive operations against Manchuria.

Aug. 9—Admiral Halsey's fleet moves in close to northeast coast of Honshu and sends salvo after salvo roaring into steel city of Kamaishi for one hour and 45 minutes.

Aug. 10—Japanese government offers to surrender under interpretation of Potsdam ultimatum that would leave emperor's sovereignty unimpaired.

General Spaatz announces that atomic bombing of Nagasaki destroyed 30 per cent of city's industrial area.

Aug. 11—Allied powers agree to Japanese proposal to surrender on basis of Potsdam ultimatum but on condition that Japanese emperor come under authority of Allied commander in chief.

Aug. 12—More than 400 American army planes strike targets on Japanese homeland, including Kurume supply and distribution center on Kyushu.

Admiral Halsey's Third Fleet carrier planes attack Tokyo; Japanese hit major American warship at Okinawa with aerial torpedo.

Aug. 13—About 120 Twentieth Air Force Superfortresses drop 850 tons of bombs on Marifu rail yards at southern Honshu, and hit Japanese ships off coast southwest of Kure.

Aug. 14—President Truman announces that Japan has surrendered unconditionally.

Emperor Hirohito makes nationwide broadcast announcing Japan's acceptance of Potsdam Declaration at 11 P.M. EWT.

Simultaneously with announcement that war is ended, Admiral Nimitz flashes "cease fire" orders to all units under his command.

More than 1,000 Allied planes strike Honshu with 6,000 tons of bombs.

Aug. 15—Red Army's Chief of Staff Gen. Alexei I. Antonov states that war still continues in Manchuria; Soviet columns will press offensive operations until Japanese lay down arms.

Aug. 16—Japanese troops continue to resist in Manchuria and in Luzon despite demand for surrender.

Aug. 22—Russian airborne troops land in Kurile Islands west of Aleutians; other Russian troops reoccupy Yellow Sea ports of Dairen and Port Arthur on Kwantung Peninsula below Manchuria, which once belonged to Russia.

Aug. 25—Soviet troops land on east coast of Korea.

Aug. 27—Flotilla of 10 warships from Admiral Halsey's Third Fleet sail into Tokyo Bay in final preparation for landings of 10,000 sailors and marines at Yokosuka naval base.

Aug. 28 (New York time)—Admiral Halsey enters Tokyo Bay aboard flagship *Missouri.*

Russian forces complete occupation of southern half of Sakhalin and all but one of Kurile Islands.

Aug. 29 (New York time)—Following his airborne troops, General MacArthur lands at Atsugi Airfield near Tokyo, accompanied by General Eichelberger of Eighth Army and General Sutherland, his chief of staff, to direct occupation and surrender of Japan. For first time in 1,000 years, foreign troops occupy Japan.

Aug. 31—Main force of General Eichelberger's Eighth Army begins landing at Yokohama.

Sept. 2—Japanese surrender formally and unconditionally to Allies, in 20-minute ceremony aboard U.S. battleship *Missouri* in Tokyo Bay. Twelve signatures affixed to surrender document, with General MacArthur signing for Allies and Foreign Minister Mamoru Shigemitsu for Japan.

Japanese Gen. Tomoyuki Yamashita formally and unconditionally surrenders remnants of his Philippines Army to liberated Lieut. Gen. Jonathan M. Wainwright.

Premier Stalin announces that southern Sakhalin and Kurile Islands once again belong to Russians.

Sept. 4—Japanese surrender Wake Island to Americans aboard destroyer escort *Levy*.

Sept. 7—Gen. Joseph W. Stilwell accepts Ryukyu surrender; document is signed by 9 Japanese officers headed by Gen. Tosiro Nomi.

Sept. 8—Lieut. Gen. Stanley Savige, signing for Australia, receives surrender of 723,000 Japanese troops in Solomon Islands, by Gen. Mastane Kanda and Vice Admiral Noboru Sanejima.

Sept. 14—Captain Solda, commander of Japanese forces on Nauru, surrenders to Brig. Gen. J. R. Stevenson of Australia.

China-Burma Theater

Jan. 5—British and Indian forces capture port of Akyab, last big Japanese naval and air base in western Burma, without firing a shot.

Jan. 15—Chinese First Army captures Namhkam, leaving Japanese blocking Burma Road only at Wanting.

Jan. 16-17—U.S. Fourteenth Air Force damages or destroys 135 Japanese planes in Shanghai and other cities in occupied China.

Tokyo reports more than 300 American carrier planes hit China coast for fourth successive day, battering Hong Kong, Canton, and Hainan Island, while B-29's again pound Formosa.

Jan. 28—Gen. Chiang Kai-shek officially names Burma-Ledo Road the Stilwell Road in honor of Gen. Joseph W. Stilwell, who planned artery and almost saw it completed before differences with General Chiang led to his recall.

First convoy over Ledo-Burma Road rolls into Wanting, Chinese border town, to make first overland delivery since fall of Lashio in April 1942.

Jan. 31—Japanese claim seizure of entire Hankow-Canton railway, with capture of Kukong.

Feb. 6—Japanese capture Namyung and Kanhsien, center of wolfram mining district of China which has been supplying U.S.

Feb. 7—B-29's hit Japanese targets at Saigon, French Indo-China, destroying vital Rama VI Bridge west of Bangkok, Siam.

Feb. 8—U.S. Fourteenth Air Force's January record for China operations give 334 Japanese aircraft destroyed, including 90 bombers; 48 planes probably destroyed and 216 damaged; 15 vessels, totaling 13,500 tons sunk and 89 smaller vessels; 6 others probably destroyed.

Feb. 24—Chinese recapture Lienhwa, key town on Japanese supply route to Kanhsien and Suichwan, former American air bases in Kiangsi Province.

Mar. 3—Plunging 85 miles across Irrawaddy, British forces end dramatic 11-day thrust through Japanese-held Burma by capture of Meiktila, rail, road, and airfield center, 80 miles south of Mandalay.

Mar. 7—Chinese capture old city of Lashio, Burma, 2 miles from new Lashio.

Mar. 20—Mandalay falls to British after 2 years, 10 months, and 12 days of Japanese occupation.

Mar. 22—More than 100 India-based B-29's make second assault on Rangoon.

Apr. 3—General Chennault's Fourteenth Air Force planes destroy and damage 122 Japanese planes in raids on Shanghai and Kiukiang airdromes in China.

Apr. 6—Liberators heavily bomb Hong Kong for third straight day.

Apr. 13—Chinese Army spokesman reports that Japanese mechanized forces moved from Manchuria to Shanghai area are being rushed back to original positions as result of Moscow's denunciation of Russo-Japanese neutrality pact.

Apr. 16—British and Indian troops capture Taungup, last Japanese coastal supply base in Arakan area of Burma.

Apr. 19—British Fourteenth Army troops capture Chauk, heart of one of richest oil-producing areas in Burma.

May 3—British Fourteenth Army captures Rangoon, Burma.

May 4—Admiral Lord Louis Mountbatten proclaims end of campaign in Burma, with Japanese suffering 347,000 casualties, 97,000 of them dead.

May 19—Chinese reoccupy great east coast city of Foochow.

May 27—China's entire Sixth Army moved by air from Burma to China by U.S. Army Air Transport Command.

Chinese troops recapture inland treaty port of Nanking, 470 miles south of Chungking, and cut Japan's overland highway lifeline to Indo-China and Singapore.

June 30—Chinese troops retake Liuchow, former American airbase in south China—fourth major victory in 2 months. Gen. Chiang Kai-shek's forces reoccupy Taichow; reach French Indo-China frontier at Trung, Khanh Phu (Chungching) and Malungchia.

July 20—Chinese troops seize Yiyang, key point in Chinese "rice bowl."

July 27—Chinese forces capture Yangso and break into outskirts of Kweilin, regaining 8 former American airfields.

Aug. 1—Tenth Air Force begins operating in China as part of General Stratemeyer's new command.

Aug. 8—Russia declares war on Japan; 9 minutes after declaration becomes effective, Russian Far Eastern Army begins hostilities with attack along eastern Soviet-Manchurian border.

Aug. 10—Russian troops in Manchuria advance 105 miles in day in trans-Baikal sector; take Hailar on Chinese Eastern Railway.

Aug. 11—Gen. Chiang Kai-shek orders armies to keep on fighting until cease fire order is received.

Russians advance 50 miles across Great Hingan Mountain range in western Manchuria in direction of Harbin.

Aug. 13—Following Tokyo's surrender offer, Japanese troop units in Chekiang Province south of Shanghai cease firing; begin negotiating their capitulation.

Aug. 14—Chinese Communists inform Gen. Chiang Kai-shek that they refuse to accept his command to remain at their posts.

Aug. 15—Gen. Chiang Kai-shek invites commander of Communist armies in northwest China to visit Chungking to confer with him.

Aug. 17—In defiance of orders issued by Gen. Chiang Kai-shek, Chinese Communist Gen. Chu Teh summons Japanese commander Lieut. Gen. Okamura to surrender to Communists.

General Spaatz discloses that American Superfortresses in 14-month campaign destroyed industrially 59 Japanese cities at cost of 437 planes.

Aug. 18—Russian forces make 25-mile gains in Manchuria.

Aug. 20—Civil war breaks out in northern China as Communist and government troops clash.

As all organized warfare appears at an end in Manchuria, Russian troops enter cities of Mukden, Harbin, and Changchun, Japanese puppet capital of Manchuria.

Admiral Lord Louis Mountbatten orders Japanese envoys to appear at Rangoon, August 23, to arrange Japanese military surrender in southeast Asia.

Aug. 21—Russians announce surrender of entire Japanese Fifth Kwantung Army Group.

Aug. 23—Premier Stalin announces Red Army has completed conquest of Manchuria and southern half of Sakhalin Island, and has occupied Paramushiro, Japanese naval base in Kurile Islands.

Japanese envoys deliver battle order revealing that 1,000,000 Japanese troops are to be surrendered to Gen. Chiang Kai-shek's forces.

Aug. 25—Gen. Chiang Kai-shek's government forces enter Shanghai and Nanking while rival Communist forces march on these two cities.

Aug. 26—General MacArthur instructs Japanese at Hong Kong to surrender to British.

Aug. 30—Strong British naval force sails into Hong Kong Harbor to reoccupy crown colony. Lieut. Gen. Wedemeyer states U.S. Navy will control all of China coast except Hong Kong and Canton areas.

Sept. 5—British troops reoccupy Singapore.

Sept. 9—Formal surrender of about 1,000,000 Japanese troops in China signed at 9:04 A.M. (8:04 P.M. Saturday, EWT). Gen. Yasuji Okamura signs for Japan; Gen. Ho Ying-chin accepts for China.

Sept. 12—Chungking government takes control of Shanghai; completes reoccupation of Canton. Chinese troops move into Indo-China to accept surrender of Japanese north of 16th parallel in accordance with Big Four agreement.

At Singapore, Lord Mountbatten accepts formal surrender of Japan's huge southern armies and directs his troops to be severe with nonco-operation.

Sept. 13—Japanese envoys sign formal surrender at Rangoon, Burma.

Sept. 16—Hong Kong formally surrendered by Japanese to Great Britain. Rear Admiral Cecil H. J. Harcourt signs for Britain; Maj. Gen. Umekichi Okada and Vice Admiral Ruitako Fugita for Japanese.

Sept. 29—American First Marine Division lands at Tientsin to aid China in disarming of Japanese and restoration work.

Oct. 3—Street fighting breaks out in Kunming between troops of Chungking government and those of Gen. Lung Yun, deposed as Yunnan Province governor in Gen. Chiang Kai-shek's drive on war lords to help unify China.

Oct. 4—After 18 hours of fighting, calm returns to Kunming and deposed governor, General Lung Yun, welcomes his successor.

Oct. 6—Chinese Communists reported under attack from Gen. Chiang Kai-shek's armies, with Japanese support, in central China.

Oct. 21—Chinese Communist Army withdraws north of Yangtze River in accordance with peace agreements made during Kuomintang-Communist negotiations at Chungking.

Oct. 27—Chinese central government offers Communists all north China territory they now occupy provided they evacuate railway zones and do not interfere with railroad communication.

Oct. 28—Reports from Chungking state undeclared civil war is going on in at least 11 provinces of north China.
Nov. 8—Communist sources report fierce fighting along Great Wall of China.
Nov. 14—Chinese Communists move troops into Manchuria on heels of withdrawing Russians.
Nov. 16—Chinese nationalist troops pierce great wall of China, enter Manchuria.
Dec. 2—Chinese nationalists reach Tahushan, 65 miles southwest of Mukden.
Dec. 12—Chinese government troops enter Mukden by road, Changchun by air.
Dec. 20—Communist leader Chou En-lai proposes an unconditional truce be imposed on Communist and Kuomintang troops while all-party Peoples' Consultative Council discusses settlement of Communist-Kuomintang differences in Chungking.
Dec. 27—Kuomintang and Communists representatives meet in Chungking in renewal of efforts to end civil strife in China.
Dec. 31—The Chinese government delegates, in meeting with Communist leaders, propose U.S. Gen. George C. Marshall as referee on hostilities.

Naval Losses

June 13—U.S. Navy and British Admiralty jointly announce that overall merchant shipping losses to United Nations and neutral countries was 4,770 ships, aggregating 21,140,000 gross tons.
June 25—War Department announces that U.S. ship losses during war against Germany and Italy were 105 vessels sunk and 10 damaged; cargo lost with them amounted to 537,656 measurement tons.
Aug. 25—Official Washington reports war cost United States 52 submarines.
Sept. 24—Navy Department announces that 11 U.S. aircraft carriers were sunk, 30 others damaged during second World War.
Oct. 1—Final count of U.S. naval vessels lost in Second World War totals 701 vessels, including 2 battleships (*Arizona* and *Oklahoma*, both lost at Pearl Harbor); 5 aircraft carriers; 6 escort carriers; 7 heavy cruisers; 3 light cruisers; 71 destroyers; 11 destroyer escorts; 52 submarines. See also under Naval Progress.

Casualties

May 24—Germans estimate their casualties in the war—army, navy, and air forces—at between 3,500,000 and 4,000,000 who were killed or died of wounds from outbreak of hostilities to winter of 1945.
July 6—Chinese High Command estimates Chinese casualties during the 8 years of war with Japan at 3,178,063—1,310,224 killed.
Sept. 6—Tokyo radio quotes government spokesman that Japanese casualties totaled about 5,085,000, including more than 450,000 army and navy men killed. Allied air attacks against Japan, it was said, killed 241,309 and wounded 313,041, with the heaviest losses in the Tokyo area. Deaths in Hiroshima and Nagasaki, sites of the two atom bomb attacks, were given as 49,221, and 21,501 respectively.
Oct. 4—United States casualties since beginning of war placed at 1,070,524 as follows: Army—killed, 206,622; wounded, 571,664; missing, 22,552; prisoners, 121,638. Navy—killed, 54,986; wounded, 80,247; missing, 10,259; prisoners, 2,556. In First World War American casualties totaled 364,800, or 8 per cent of the total mobilization, including dead, wounded and missing.
Oct. 11—Prime Minister Attlee of Great Britain tells House of Commons that the estimated losses of the German armed forces in killed, permanently wounded and permanent medical casualties totaled approximately 7,400,000 from Sept. 1, 1939 to May 10, 1945.
Nov. 29—Prime Minister Attlee reports that British Empire battle casualties during the war totaled 1,246,025, with 353,652 killed as follows: United Kingdom, 244,723; Canada, 37,476; Australia, 23,365; New Zealand, 10,033; South Africa, 6,840; India, 24,338; colonies, 6,877. Wounded: 475,070; prisoners, 326,459; merchant seamen (not included in above), 45,411 (30,189 deaths).
Jan. 9, 1946—Final estimates place American casualties on Okinawa at approximately 80,000—Japanese casualties at 120,000. Of the American casualties 32,473 are listed as non-battle. Broken down the casualty list shows 21,342 army; 16,313 marine; and 9,721 navy. The non-battle list shows 21,592 army; 10,881 marines.
Note: Russia has given no estimates of its battle casualties since June 27, 1944, when Marshal Stalin placed them at 5,300,000.

War Criminals

Apr. 14—U.S. Ninth Army captures 65-year-old Franz von Papen, former chancellor of German Republic, vice chancellor under Hitler, and later German ambassador to Austria and Turkey.
Apr. 29—Benito Mussolini, former Fascist dictator of Italy, assassinated by Italian partisans near Como, along with woman companion and 12 other Fascists.
Apr. 30—Edouard Herriot, former premier of France, liberated from German captivity by Red Army, arrives in Moscow.
May 1—Benito Mussolini, Signorina Clara Petacci, and Achille Starace are buried in paupers' section of Cimitero Maggiore, Milan.
Nazi radio announces that Hitler died in battle of Berlin at his command post in chancellery.
May 2—Pierre Laval, former French premier seeking refuge in Montjuich fortress outside Barcelona, Spain, interned at requests of Allied governments.
May 5—Former French Premiers Edouard Daladier, Paul Reynaud, and Leon Blum; Generals Maurice-Gustave Gamelin and Maxime Weygand; and former Austrian Chancellor Kurt Schuschnigg freed as German political prisoners.
U.S. Seventh Army captures Poland's number one war criminal, Gov. Gen. Hans Frank, in Berchtesgaden.
May 9—Marshal Herman Göring, Nazi air minister, and Field Marshal Gen. Albert Kesselring, last supreme commander of German armies in west, surrender to U.S. Seventh Army; Vidkun Quisling, puppet premier of Norway, surrenders with 6 of his aides to Norwegian police.
May 23—Last government of Germany dissolved by Allies as Grand Admiral Karl Doenitz, Col. Gen. Gustav Jodl and other members of Germany's government, high command, and general staff are arrested.
May 24—Heinrich Himmler, German minister of interior and Gestapo chief, captured by British in Lueneburg, near Bremen, Germany, and commits suicide by swallowing poison.
May 24—Field Marshal Gen. Robert Ritter von Greim, who succeeded Hermann Göring as head of Luftwaffe, commits suicide.
June 15—British capture Joachim von Ribbentrop, Hitler's foreign minister, in Hamburg lodging house.
Aug. 1—Pierre Laval arrives in Paris and is imprisoned to await trial for treason.
Aug. 14—Marshal Henri-Philippe Pétain convicted of treason and intelligence with enemy and sentenced to death.
Aug. 17—General de Gaulle commutes Marshal Pétain's death sentence to life imprisonment.
Aug. 20—Trial of Vidkun Quisling opens in Oslo, Norway.
Sept. 5—Military police of U.S. Eighth Army arrest Iva Togori in Yokohama. Miss Togori is California-born Nisei who, during the war, broadcast propaganda from Tokyo to U.S. troops in Pacific, under the name "Tokyo Rose."
Sept. 10—Vidkun Quisling, Norwegian traitor, sentenced to death.
Sept. 11—General MacArthur orders arrest of 40 persons classed as war criminals. General Tojo, prisoner No. 1, shoots himself, but is kept alive by American doctor.
Sept. 19—William Joyce (Lord Haw Haw) sentenced to be hanged.
Sept. 29—American-born Rita Louis Zucca, "Axis Sally," broadcaster of Nazi radio propaganda to U.S. troops in Mediterranean area, sent to prison by Italian military tribunal for 4 years and 5 months.
Oct. 7—Rudolf Hess returned to Germany to stand trial as war criminal.
Oct. 9—Pierre Laval sentenced to death after trial by the French High Court of Justice.
Oct. 15—Pierre Laval executed at Fresnes Prison, Paris, after attempt to take his own life by poison.
American military tribunal condemns 3 war criminals to death and sentences 4 others to long prison terms for mass murders in Hadamar insane asylum.
Oct. 24—Vidkun Quisling executed by firing squad in Oslo.
Oct. 25—Dr. Robert Ley, German Labor Front chief, commits suicide by strangling himself in his cell at Nürnberg prison.
Oct. 28—First Pacific war criminal trial begins in Manila as American Military Commission opens case against Gen. Tomoyuki Yamashita, Japanese commander in Philippines during last 11 months of war.
Nov. 20—International Military Tribunal in Nürnberg opens first trial of 20 top German war criminals.
Dec. 1—Rudolf Hess, self-confessed amnesia faker, ruled fit to stand trial in Nürnberg.
General Dostler, German corps commander who ordered execution of 15 Office of Strategic Services men, executed by firing squad at Aversa, Italy, after conviction on wartime charge.
Dec. 6—General MacArthur orders arrest of Prince Fumimaro Konoye, 3 times premier of Japan.
Dec. 13—United States military court sentences 36 Dachau defendents to death by hanging, one to life imprisonment and 3 others to 10 years in prison.
Dec. 14—Josef Kramer, "the beast of Belsen," his subordinate Irma Grese and 9 others hanged in Hameln, Germany, after conviction of concentration camp atrocities.
Dec. 15—Prince Fumimaro Konoye, three-time premier of Japan commits suicide rather than surrender himself as a war criminal, in his Tokyo home.
Dec. 17—Lieut. Gen. Tomoyuki Yamashita receives stay of execution from Supreme Court of U.S. to which he appealed Dec. 3.

EUROPEAN OCCUPATION

May 11—General Eisenhower will control American zone in Germany and will be U.S. representative on 4-power council that will rule Germany.

May 15—Allied military mission takes over control of government of Admiral Karl Doenitz at Flensburg.

May 22—Field Marshal Sir Bernard L. Montgomery appointed commander in chief of British forces of occupation in Germany and British member of Allied Control Commission in Germany.

June 5—General Eisenhower arrives in Berlin to attend first meeting of Allied Control Council for Germany.

June 9—State Department announces that temporary military administration of Italian province of Venezia Giulia, including Trieste, under Allied control, has been agreed upon by United States, Britain, and Yugoslavia.

June 28—War Department announces Gen. Mark W. Clark has been designated commander in chief of U.S. Occupational Forces in Austria.

July 12—British and American troops move into their occupation areas in Berlin.

July 15—Prime Minister Churchill and President Truman arrive in Berlin by plane.

July 17—As Big Three Conference opens in Potsdam, Germany, Premier Stalin and Prime Minister Churchill choose President Truman to preside over meetings.

July 25—Berlin Conference recesses to permit Prime Minister Churchill, Foreign Secretary Eden, and Deputy Prime Minister Attlee to return to hear results of recent election in Great Britain.

July 28—Prime Minister Clement R. Attlee, successor to Prime Minister Churchill, prepares to leave for Potsdam Conference.

Aug. 2—Berlin Conference ends.

Aug. 8—Agreement between Russia, United States, United Kingdom, and France creates system dividing Austria into 4 zones of occupation; provides that Vienna, capital city, shall be under their joint control.

Aug. 15—State Department issues official map defining limits of Allied zones of military occupation in Germany as follows: American zone, bordering French area on east, includes all or most of provinces of Bavaria, Wurttemberg, Hesse, and Hesse-Nassau; British forces will hold northwestern Germany including provinces of Schleswig-Holstein, Hanover, Hamburg, Bremen, Oldenburg, Schaumberg-Lippe, Brunswick, Lippe, Westphalia and northern part of Rhine; Russia's zone borders British area on east and American on southwest, and embraces Mecklenburg, Saxony, Thuringia, and a section of Brandenburg. Each zone roughly approximates 40,000 square miles, about twice the area allotted to France who will occupy a region bordering the Rhine on both sides and divided into two triangular sections.

Sept. 6—Under Russian sanction, big estates in Saxony are being broken up and apportioned among poor farmers.

Sept. 10—All German officials and agents in neutral countries recalled by Allied Control Council functioning in Berlin.

Oct. 2—General Eisenhower relieves General Patton of his duties as Third Army commander and military governor of Bavaria; appoints Lieut. Gen. Lucian K. Truscott to succeed him.

Oct. 7—U.S. and Great Britain agree to recognize Dr. Karl Renner's provisional government in Austria.

Oct. 12—Allies seize 300 plants of I. G. Farbenindustrie in Germany; will destroy those devoted to making war and use others for reparations.

Oct. 20—U.S., Great Britain, Russia, and France officially recognize provisional government of Austria.

Oct. 21—Russia gives full recognition to Renner provisional government of Austria independent of Allied Control Council which merely announces extension of Renner's regime over whole of Austria.

British and American governments protest to Moscow against its proposed trade agreement with Hungary, designed to give the Soviet 50 per cent of Hungarian industry and transportation.

Oct. 26—Under Potsdam agreement, Soviet Russia claims most of Austria's heavy industry, shipping, natural resources, and 2 largest banks.

Oct. 31—Russia demands that Italy be required to pay total reparations bill of $300,000,000, of which one third will be given Soviet and rest will go to Yugoslavia, Greece, and Albania, while Britain and U.S. should waive any share.

Nov. 1—Soviet Union informs U.S. and Great Britain that it favors internationalizing Ruhr Valley, which French have been demanding; feels it should share in occupation.

Nov. 6—Italian armistice made public in Washington, London, and Rome; covers every aspect of Italy's military, civil, political, and economic life in accordance with Casablanca doctrine of unconditional surrender.

Nov. 10—Observers at recent London peace parley reveal Russia had asked for military bases in strategic Dodecanese Islands which other major powers wish to reserve for Greece.

Nov. 13—U.S. troops begin destruction of German war industries; blow up Ebenhausen and Kaufbueren I. G. Farben works in Bavaria.

Nov. 16—British take over Krupp munitions plants as part of program to obliterate German war potential.

Dec. 3—Britain asks Russia, France, the U.S. to agree to proposal that all 4 powers reduce occupation forces in Austria to mitigate that country's economic burden.

Soviet Union rejects U.S. proposal for withdrawal of Soviet, British, and American troops from Iran by *Jan. 1, 1946.*

Dec. 7—State Department announces about 2,000,000 Germans driven from Czechoslovakia and Hungary under the Potsdam agreement will be accommodated in the American zone and 750,000 others in the Russian zone of occupation in Germany.

Dec. 9—Gen. George S. Patton, Jr., seriously injured in automobile accident just north of Mannheim, Germany.

Dec. 13—France and Britain agree to withdraw all troops from Syria and Lebanon and by implication turn Middle East problems over to the United Nations.

Dec. 18—Allied Control Council approves Austria's new government after Chancellor Figi makes changes to meet Marshal Konev's objections.

Dec. 20—Dr. Karl Renner is unanimously elected president of second Austrian Republic and government of Chancellor Figi is immediately sworn in.

PACIFIC OCCUPATION

Sept. 2—About 25,000 Americans take over 700 square miles of Japan reaching southern limits of Tokyo.

Sept. 4—Secretary of State Byrnes reveals United States had tacitly agreed to Soviet possession of Sakhalin Island and Soviet sovereignty over Kurile islands in Pacific.

Sept. 5—American combat reconnaissance troops enter Tokyo.

Sept. 7—U.S. Marines rescue 1,200 American and British prisoners from 3 "hell camps" on Formosa.

Sept. 8—General MacArthur enters Tokyo; establishes authority over Japan. Stars and Stripes raised officially over U.S. embassy. Historic 7th Cavalry of 1st Cavalry Division leads procession.

Sept. 9—General MacArthur states he will permit Japanese to govern themselves under Allied directives. Reminds them he is over entire government, including emperor, but will use force only if necessary.

Sept. 10—General MacArthur orders Emperor Hirohito to abolish Japanese Imperial Headquarters including army and navy imperial staffs.

Eighth U.S. Army forces liberate 9,306 Allied war prisoners held in Japan.

Sept. 12—Japanese General Tojo kept alive by transfusions, following attempted suicide.

Field Marshal General Sugiyama, 65 year-old commander of Japan's First Imperial Army and former war minister, kills himself and his wife.

Sept. 16—Generals Homma and Kuroda and José Laurel, puppet president of Philippines, taken into custody.

Sept. 18—*Asaki*, Tokyo's leading daily newspaper, suspended for 48 hours by order of General MacArthur for mocking comments and "cautiously inflammable headlines."

Sept. 24—President Truman notifies General MacArthur that Emperor Hirohito is subordinate to him, that Japan is not to question general's authority.

Sept. 26—Emperor Hirohito pays formal call on General MacArthur, the first time in Japanese history an emperor of Japan has ever left his palace to call on a foreigner.

Japanese army and navy forces ordered to turn over to Allied occupation authorities all arms and military equipment, all supplies of food, clothing and motor transport for use in civilian relief.

Sept. 30—Allied occupation authorities seize and occupy 21 of largest Japanese banks; order and hold the presidents, board chairmen, managing directors, and special advisers at disposition of Allied government.

Oct. 3—General MacArthur tightens economic controls imposed on Japan by prohibiting all financial business or commercial communications from Japan, except with permission of Allied occupation forces.

Oct. 4—Premier Prince Naruhiko Higashi-Kuni presents resignation of entire Cabinet to Emperor Hirohito, after General MacArthur orders dismissal of Home Minister Yamazaki and abrogation of all laws limiting freedom of speech, religion, and opinion, as well as abolition of secret police who enforced them.

Oct. 5—Emperor Hirohito appoints Shigeru Yoshida premier of Japan, succeeding Prince Naruhiko Higashi-Kuni.

Oct. 9—U.S. troops uncover more than $250,000,000 in gold, silver, and platinum reserves secreted in Japanese vaults.

Oct. 11—General MacArthur orders Japan's premier to write a bill of rights into constitution, giving women suffrage; encouraging unionization of labor; liberalizing education system; substituting justice for tools of inquisition; and democratizing Japan's economic institutions.

Oct. 13—Shidehara Cabinet in Japan amends Japanese election law by authorizing women suffrage, lowering voting age from 25 to 20.

Oct. 14—Japanese dissolve Imperial General Staff Headquarters in Tokyo in prelude to abolition of general staff.
Oct. 15—General MacArthur states Japanese armed forces throughout Japan have been completely demobilized and Japan is no longer world power.
Oct. 17—Emperor Hirohito releases nearly 1,000,000 Japanese, held in jails and concentration camps as political offenders.
Oct. 18—General MacArthur orders narcotics crops destroyed, demands freezing of all existing stocks, cautions Japanese that no imports of narcotics will be permitted without Allied permission.
Oct. 22—Allies order Japanese to abolish military instruction and "ultra-nationalistic ideologies" in schools.
Oct. 24—General MacArthur gives Japanese newspaper editors and broadcasting corporation executives additional emphatic orders to establish free, independent press.
Oct. 26—Japanese Cabinet votes out of existence war and navy offices that carried out Japan's war of aggression.
Nov. 9—Japanese Cabinet votes to cancel Japanese conscription.
Nov. 18—Allied Headquarters orders Japan to wipe out her civil aviation industry, abolish air training by Jan. 1, 1946.
Dec. 9—General MacArthur issues order to Japanese government to end feudalistic system of land tenure by eliminating absentee ownership, providing government credit for purchase of landlords' holdings by tenants, stabilizing farm prices and protecting former tenants against relapse into condition of share croppers in future years.
Dec. 15—General MacArthur orders Japanese to abolish Shinto as national religion of Japan.
Dec. 30—Gen. Douglas MacArthur says he informed Secretary Byrnes six weeks before the Moscow Conference that a 4-nation council, agreed upon at Moscow, to sit in Tokyo was "in my opinion not acceptable." However, as chairman of the council he will "try to make it work."

INDONESIAN REVOLT

Oct. 13—Demanding full independence of Netherlands rule, commander of Indonesian People's Army proclaims all-out guerrilla warfare in Batavia area.
Oct. 14—Allies take over Batavia, following Indonesian's call for holy war against Dutch, and declare looting, sabotage, and bearing of arms punishable by death.
Oct. 17—British troops rush to Java after Indonesian extremists, in fanatical "holy war," kill 15 persons, including Netherlands citizens.
Oct. 18—Vice President Hatta of Indonesian nationalist movement declares "war of revolution" will continue for years unless Netherlands grant islands full independence.
Oct. 28—Indonesians, opposing Allied surrender orders, open fire on British Indian troops at Surabaya naval base.
Oct. 29—Indonesians kill 25 British Indian troops in Surabaya before truce is arranged.
Oct. 30—Brig. Gen. A. W. Mallaby, commander of British troops in Surabaya, killed by Indonesian nationalists as fighting continues despite cease-fire order agreed on earlier.
Oct. 31—British order RAF into action to halt Indonesian forces on march in central Java; all available warships ordered to Surabaya naval base city.
Nov. 6—Netherlands offers Indonesians home rule and full partnership in new worldwide Netherlands commonwealth of Nations; offer rejected by President Soekarno of Indonesian Republic.
Nov. 8—Maj. Gen. E. C. Mansergh, British commander of Allied forces in Java, orders Indonesians in Surabaya and other areas of east Java to surrender arms or face "all the naval, army, and air forces under my command."
Nov. 9—Indonesians state British forces in Java have begun to shell Surabaya after expiration of surrender ultimatum.
Nov. 11—British renew air attacks on Surabaya in support of Indian troops as President Soekarno of unrecognized Indonesian republic declares "thousands and thousands" of civilians had been killed in "vast massacre."
Nov. 13—Sutan Sjahrir, 36-year-old Socialist leader, replaces Soekarno as premier of unrecognized Indonesian Republic; retains only one of former Cabinet.
Nov. 15—British forces occupy government buildings in Surabaya.
Nov. 18—First conference of Netherlands, Indonesian, and British leaders ends without peace formula; Indonesian extremists call for war to death against British.
British troops seize Semarang, Java, following Indonesian uprising.
Nov. 22—Japanese troops, under British command, battle Indonesians in Java.
Nov. 25—RAF Mosquitoes make rocket strike in Java, crippling propaganda machine of Indonesian extremists by shooting up Surakarta and Jogjakarta radio stations.
Nov. 29—After 19 days of fighting, Surabaya is under complete British control.
Dec. 6—British and Netherlands officials gather in Singapore to discuss Java situation.
Dec 9—Indonesian uprisings spread to Sumatra.
Dec. 10—Royal Air Force planes wipe out mountain village in Java in retaliation for ambush of relief column.

WYOMING. Mountain state, United States; admitted to the Union July 10, 1890. Population (1940): rural, 157,165; urban 93,577; total, 250,742. Land area, 97,506 square miles, divided into 23 counties. Principal cities, with 1940 populations: Cheyenne, the capital, 22,474; Casper, 17,964; Laramie, 10,627; Sheridan, 10,529.

Chief State Officers, 1945.—Governor, Lester C. Hunt; secretary of state, William Jack; treasurer, Earl Wright; auditor, Carl Robinson; attorney general, Louis J. O'Marr.

Judiciary.—Chief justice of the Wyoming Supreme Court, Fred H. Blume; associate justices, Ralph Kimball and William A. Riner.

Legislature.—The state legislature (Senate, 29 members; House of Representatives, 109) convenes biennially in odd years on the second Tuesday in January.

Education.—Elementary school teachers in the state (latest report, 1943–44 school year), 1,737; pupils, 37,867; average yearly salary of elementary school teachers (1943–44), $1,360; (1944–45), $1,430. Public senior high school teachers (1943–44), 743; students, 13,118; average yearly salary of senior high school teachers (1943–44), $1,685; (1944–45), $1,785. The University of Wyoming is located at Laramie. Total state appropriation for education (1943–44): oil royalty, $837,807; common school land income, $1,030,624; school equalization, $222,750. Total appropriation by cities and counties (1943–44), $7,591,538. Education in Wyoming is compulsory for children between the ages of 7 and 16, inclusive.

Finances.—Following is a statement of Wyoming's finances for the fiscal year 1944–45, supplied by the state treasurer's office:

Balance in treasury, beginning of fiscal year 1944–45	$12,608,886.57
Receipts, 1944–45	19,652,781.80
Total	$32,261,668.37
Disbursements, 1944–45	16,179,054.22
Balance, beginning of fiscal year 1945–46	$16,082,614.15

Agriculture.—The yield of the leading crops of the state in 1944, with 1934–43 average crops, and the United States Department of Agriculture's October 1 estimates of the 1945 crops, are shown in the following table:

Crop (and unit of production)	Production: Average 1934–43	Final 1944	Preliminary 1945
Corn (1,000 bu.)	1,784	1,260	1,552
Oats (1,000 bu.)	3,018	4,320	4,681
Wheat (1,000 bu.)	2,793	3,198	4,306
Barley (1,000 bu.)	1,963	3,162	2,998
Sugar beets (1,000 short tons)	520	307	438
Hay:			
Alfalfa (1,000 tons)	520	512	521
Tame (1,000 tons)	768	761	774
Wild (1,000 tons)	322	311	388
Beans, dry edible (1,000 bags)	729	1,251	1,100
Potatoes (1,000 bu.)	1,954	2,170	2,450

X

X-RAY DEVELOPMENTS. The hope fervently expressed in the 1945 ANNUAL that the world might be at peace to celebrate the semicentennial of the discovery of X-rays by Roentgen on Nov. 8, 1945, has been realized. At the same time the centennial of the birth of this modest man of peace, a German but never a follower of a Kaiser or a Hitler, is commemorated by a grateful world. All the eminent roentgenologists of the United States—medical, industrial, chemical, physical—joined on the above date in Milwaukee in a great accounting of stewardship over 50 years of contributions of X-rays to the saving of life, vastly improved and safer materials, and brilliant pages in the advance of chemistry, physics, mineralogy, metallurgy, engineering, and biology. It is certain that X-rays played some important role in research on the atomic bomb. Roentgen's discovery in 1895 was the first great step in the long road culminating in this amazing, frightful weapon. Even so, we think rather of the countless mobile X-ray units on every battle front for rapid diagnosis to guide the surgeons in their superhuman efforts to save life.

There has not been time as yet for release of information concerning developments in equipment, techniques and applications achieved under stress and of necessity during the war. These will be largely a matter of valuable aid from established equipment and techniques.

Industrial Radiography.—In industrial radiography there have been no special changes since the announcement of the 2,000,000 volt X-ray tubes for radiography of steel sections up to 12 inches; but production of rays from the 100,000,000-volt betatron is still news. A commercial model of the 20,000,000-volt betatron was demonstrated in November 1945, for radiography of steel up to 20 inches thick. Demands for inspection far beyond anything dreamed of before the war have been realized, ranging from the smallest parts and assembled delicate instruments through magnesium alloy castings, which could never have been made satisfactorily without X-ray help, on up to huge bronze propellers, artillery, pressure vessels, ships and tanks.

It has been possible to discover X-ray developments in Germany during the war, as the result of the inspection by American engineers soon after the surrender. The enemy had no million volt or even half million-volt installations. There is no evidence of any unusual tubes, power units or applications though all manufacturers devoted every facility up to the end to supply strictly war requirements. Much of the success of their substitute materials must be attributed to persistent and characteristically thorough X-ray testing, inspection and research.

Instantaneous radiography made possible by the Westinghouse condenser discharge unit has resulted in one of the greatest steps forward in the science of ballistics. Bullets moving at 4,000 feet per second appear to stand still in the exposures of a millionth of a second.

X-ray Diffraction Developments.—Design and commercial production of diffraction units with automatically recording Geiger-Mueller counters for sensitive indication of intensities represent a decided step forward. These were developed originally to control the cutting and grinding of quartz plates used as high frequency oscillators (See 1944 ANNUAL), but subsequently these units have made possible many new applications. This is part of the remarkable trend towards utilizing the most advanced, formerly purely academic, phases of ultimate crystal and molecular structure analysis to the solution of very practical problems such as the molecular configuration of penicillin and other antibiotics, DDT, and new natural and pharmaceutical compounds of considerable complexity. Under ordinary circumstances DDT as manufactured contains 2 or even more impurities. No satisfactory chemical method has been discovered for such an analysis; but the X-ray diffraction pattern is a certain "finger-print" and is generally accepted as most reliable and simplest for evaluation of this sensational insecticide.

The ultimate goal of diffraction analysis is the construction of a contour map of a molecule based upon calculation of electron densities from Fourier series summations in which measured intensities are used as coefficients. This is an exceedingly laborious process. However, a method devised by Sir William and Sir Lawrence Bragg, based on much earlier work by Ernst Abbe, employs an optical summation. This method has now been further improved and simplified both in England in the "fly's eye" camera and by the Eastman Kodak Company in America. A series of masks are prepared on photographic film. Of these, correct ones are selected to conform with X-ray data. When a beam of light is passed through these masks, an image is photographed which is a "picture" of an atom or a molecule projected on a plane, as it might appear if magnified hundreds of millions of times. With such a method even the molecule of penicillin, which is very complex, is pictured and one of numerous alternative shapes and configurations can be selected.

During the past year remarkable progress has been made in disclosing the ultimate structures of some ceramic materials, clay minerals, limes, plasters and concretes which fail, phosphates for water treatment, complex salicylic-boric-benzoic acid antiseptics, microcrystalline waxes, regenerated protein fibers, chicken feather textile fabrics, animal intestine casings, carbon blacks, storage battery and dry cell chemicals, powder metallurgy products, new plastics and many other materials. It has been possible to set up standards in much the same fashion as any powder by comparison with American Society for Testing Materials Tables. It is even possible to distinguish one neoprene or nylon from another and to measure cis- and trans-linkages in polymer molecules from patterns after reactions with certain simple salts.

A New Diffraction Microscopy.—In 1945 Dr. C. S. Barrett of the Carnegie Institute of Technology announced a new microscopy of potential value in physical metallurgy and in other fields, which depends on X-ray diffraction. This new adaptation supplements optical and electron microscopy and microradiography. It differs from usual technique in employing a fine-grained photographic plate in contact with or very close to the specimen upon which a beam of characteristic X-rays strikes. The diffraction image is enlarged just as in the case of microradiography. These diffraction micrographs show the places where inhomogeneous strain is concentrated.

Along planes where slip has occurred throughout the interior of crystals and polycrystalline grains there is a local bending or rotation of the crystal lattice. At such points the efficiency of X-ray reflection is increased and a dark line is produced on the photographic plate. Measurement can be made of the amount of rotation (usually less than 0.1°) and the thickness of the distorted layer. Thus strain, plastic deformation, twinning, distortion from scratches and cutting tools, annealing, recrystallization, coring, clustering of similarly oriented grains, age-hardening and superlattices are all subjects for investigation by the technique. Sizes and shapes of polycrystalline grains are shown in truly amazing photographs. Since these diffraction micrographs register the effects in individual grains (while ordinary diffraction patterns are the summation of effects from large numbers of grains), it is possible to identify microconstituents from the directions of diffracted rays measured with two films at different distances, and application of the Bragg law. Thus nondestructive microanalysis on individual particles is one of the useful applications.

Direct Photochemical Uses of X-rays.—For a long time it has been known that X-rays may cause various chemical or physical changes when absorbed by certain materials. The effect on the photographic emulsion is most familiar; the lethal effect on the cancer cell is the basis of roentgen therapy. Minerals, gems and glasses are colored by X-ray exposure, and this has served as an industrial process. One of the most remarkable effects has proved highly advantageous during the war. The Reeves Sound Laboratories discovered that the piezoelectric quartz plates used to control radiofrequencies and produced in a large number for the Army Signal Corps became smoky when exposed to X-rays, and at the same time the oscillation frequency decreased. As a matter of fact, this property could be accurately controlled simply by the time of exposure. Thus thousands of plates which were ground too thin or were otherwise unsatisfactory were salvaged and brought to exactly the desired frequency. The frequency change brought about by radiation can be reversed and the original value restored by baking the plate at a temperature over 175°C. This process undoubtedly may be applied to a wide variety of other materials. Great impetus to practical use of photochemical and biological effects of X-rays is given by the successful development by the Machlett Laboratories of a tube which will generate beams of far greater intensity—5,500,000 roentgens per minute—than ever before achieved. This tube, announced by the writer on Nov. 9, 1945, is characterized by a beryllium foil dome on one end, and an annular filament around the target, thus permitting a beam over a 180° solid angle. The intensity is equivalent to that of γ-rays from 90 pounds of radium.

The year 1946 promises to be one of the most productive and noteworthy in all the history of X-ray science which begins its second half century. See also ELECTRICAL AND ALLIED DEVELOPMENTS; TUBERCULOSIS.

G. L. CLARK,
Department of Chemistry, University of Illinois.

Y

YACHTING. See SPORTS IN 1945.
YALTA CONFERENCE. See WORLD POLITICS.
YEMEN. See ARABIA.

YOUNG, Hugh Hampton, American surgeon and urologist: b. San Antonio, Texas, Sept. 18, 1870; d. Baltimore, Md., Aug. 23, 1945. Dr. Young was not only an internationally known surgeon and a pioneer in the field of urology, but a sportsman, an ardent flier and supporter of aviation, a patron of the arts, and an eager traveler. He became a friend and acquaintance of presidents, princes, and men and women of world renown.

Dr. Young received his B.A., M.A., and M.D. degrees at the University of Virginia, then spent the year 1894–95 in postgraduate study at Johns Hopkins University. He was successively assistant resident surgeon (1895–98), head of the department of urological surgery, and associate surgeon at Johns Hopkins Hospital, and clinical professor of urology at Johns Hopkins University. From Diamond Jim Brady, a friend and patient, he obtained $600,000 in 1912 for the erection and maintenance of the James Buchanan Brady Urological Institute of Johns Hopkins, the first clinic in the United States devoted entirely to the treatment of urological ailments. During the First World War, Dr. Young was the United States' first medical representative in France, and he served as director of urology in the American Expeditionary Forces in 1917. He received the Distinguished Service Medal for his services. Dr. Young made what has been termed one of the major contributions to surgery by developing his method of excision of the prostate gland. Later, he made other important contributions, including advocacy of the use of dyes as curative agents by injection. He and his associates were credited with the development in 1924 of mercurochrome, destined to play a large part in the successful treatment of blood poisoning. In 1941 he was one of the four scientists to receive the first Francis Amory awards from the American Academy of Arts and Sciences. He retired from the directorship of the Brady Clinic on July 1, 1942, and since then had devoted his time to clinical research and writing. *Hugh Young: A Surgeon's Autobiography* was published in 1940.

YOUNG MEN'S CHRISTIAN ASSOCIATION (Y.M.C.A.). During 1945 Y.M.C.A.'s in the United States and Canada gave major emphasis to service to veterans through schools, health and recreational activities conducted by local associations; program for servicemen in transit, at military centers and in hospitals; supplying religious, educational and recreational materials to prisoners of war; an active public affairs program.

These special activities and continuing religious, educational, social and recreational activities for boys, young men, older men, girls and women were conducted in 1,267 associations in the United States for 1,295,393 members and

290,694 other registered constituency enrolled in 98,528 groups. The capital investment of associations totaled $224,398,200 and operating expenses were $70,416,200. There were 3,429 employed secretaries.

Canadian totals on Jan. 1, 1945 were: 77 associations with 57,973 members, 12,921 registered nonmembers, 5,784 functioning groups, $86,359 invested in plant and equipment, $31,431 operating expenditures and 282 employed secretaries.

In the United States the Y.M.C.A. functioned as one of the six founding members of the United Service Organization in maintaining direct service to the armed forces. On Sept. 1, 1945, there were 373 Y.M.C.A. conducted U.S.O. army and navy units and 57 industrial operations with 629 Y.M.C.A. secretaries in U.S.O. service. The Canadian Y.M.C.A., in addition to rendering extensive wartime services at home, functioned as an official arm of the military command overseas, a privilege not permitted under United States military policy.

Work in 33 different countries among prisoners of war on both sides of the conflict was conducted by the World's Committee of Y.M.C.A.'s at a cost of over $9,000,000 in the past year. In peacetime the World's Alliance of Y.M.C.A.'s, which includes the American and Canadian movements, maintains an office at 52 Rue des Paquis, Geneva, Switzerland, and conducts a worldwide program for the development of physical, social, intellectual and spiritual capacities of youth for effective citizenship.

Offices of the National Council of the Y.M.C.A.'s of Canada are at 21 Dundas Square, Toronto 1, Ontario. Officers are H. Jasper Humphrey, president, and Richard S. Hosking, general secretary.

The National Council of the Y.M.C.A.'s of the United States has offices at 347 Madison Avenue, New York 17, N.Y. Officers are Howard A. Coffin, president, and Eugene E. Barnett, general secretary.

OWEN E. PENCE,
Director, Bureau of Records, Studies and Trends, National Council, Y.M.C.A. of the United States.

YOUNG WOMEN'S CHRISTIAN ASSOCIATION. In 1945 the Y.W.C.A. in the United States through its 1,516 local units of work served a constituency of nearly 3,000,000 women and girls. During the early months of the year, in addition to its regular service and activities program, the Y.W.C.A. through its participation in special war projects, such as the USO and American War-Community Services, continued to direct its efforts toward meeting the wartime needs of women and girls in this country; and through its World Emergency and War Victims Fund provided money and personnel to Y.W.C.A.'s in other countries to aid them in their war work with women and girls and in giving help to the victims of war. Since the end of the war the work of the World Emergency and War Victims Fund has become even more necessary than formerly in the countries of Europe, aiding in the relief and rehabilitation of homeless and displaced people, the re-establishment of Y.W.C.A.'s and the recruiting and training of new Christian leadership to carry forward the work of the Y.W.C.A. in the postwar period. With the closing of USO clubs in war production areas in the United States and the demand for the continuance of a similar service in the communities affected, the emphasis of the Y.W.C.A. has shifted to a program of expansion and organization of new Y.W.C.A.'s. In the spring of 1945, in lieu of the regular national convention, local Y.W.C.A.'s throughout the country held individual meetings to consider the issues which would have come before convention and out of these meetings came directives for the ongoing program of the Y.W.C.A.

In the United States in 1945 there were 1,017 local community and student Y.W.C.A.'s. In addition there were 384 registered Y.W.C.A.'s in rural areas, 77 Negro branches and 8 international institutes. The membership of the association in the United States was 544,655.

MARY S. SIMS,
National Board, Young Women's Christian Association.

YUGOSLAVIA. A country situated in the Balkan Peninsula in southeastern Europe, bounded on the north by Austria and Hungary, on the east by Bulgaria and Rumania, on the south by Greece and Albania and on the west and southwest by the Adriatic Sea, Albania and Italy. Set up as a constitutional hereditary kingdom of the Serbs, Croats and Slovenes following the First World War, it became on Oct. 3, 1929, the Kingdom of Yugoslavia (Jugoslavia, Jugoslavija). Its area is 248,897 square kilometers (95,576 square miles), making it the thirteenth in size among the European countries and the largest of the Balkan states. Its population in 1940 was 15,703,000, of whom 7,446,000 were men and 8,257,000 women. This disproportion is a consequence of the Balkan wars and the First World War. Of the main territories comprising Yugoslavia, Serbia, the largest, lies in the southeast portion. In the western part, along the Adriatic Sea, lie (from south to north) Montenegro, Dalmatia, Bosnia-Herzegovina, Crotia-Slavonia, Istria, and Slovenia, the last-named touching Italy, Austria and Hungary. Belgrade (Beograd), the capital, has a population of 300,000. Other towns are Zagreb (Agram, 200,000), Subotica (120,000), Ljubljana (82,000), Sarajevo (80,000), Skoplje (Uskub, 72,000), Split (Spalata, Spljet, 70,000), Niš (35,384), Dubrovnik (Ragusa, 18,000), Bihač (10,000), and Jajce (8,000), embattled headquarters of the National Liberation forces under Marshal Tito (Josip Broz) prior to the liberation of Belgrade.

After the outbreak of the Second World War in 1939, Yugoslavia, then under a regency of three members, remained a neutral until March 25, 1941, subject, however, to constant pressure from the Axis powers, especially after the Italian invasion of Greece. On March 25, Premier Dragisha Cvetkovitch and his foreign minister, Lazar Cincar Markovitch, signed a pact with Germany which made Yugoslavia an Axis partner. The signing aroused violent opposition in the country, leading on March 27 to the sudden overthrow of the regency by Gen. Dushan Simovitch, the ascent to the throne of the young King Peter II, and the establishment of a new anti-Axis cabinet with General Simovitch as premier. While German forces were moving into position along Yugoslavia's frontier, the Croats set up an independent state with Ante Pavelitch as president. The Germans, aided by this division in the Yugoslav forces, and disregarding the undertaking of the Yugoslav government to maintain absolute neutrality, bombed Belgrade and began an invasion of the country on April 6, which culminated twelve days later in the capitulation of the Yugoslav armies and shortly afterwards in the dis-

memberment of Yugoslavia by the Axis powers and their satellites. Puppet regimes were set up in Serbia by Germany and in Croatia by Italy, which also claimed Dalmatia (along the Adriatic Sea) and Montenegro as Italian provinces, and added a section to Albania. The remnants of Yugoslavia were divided among Germany, Hungary and Bulgaria.

A few weeks after the surrender began the rise of the National Liberation movement. This was for some two years associated by many people in the United States and elsewhere with the name of Gen. Draja Mikhailovitch, ranking officer of the Yugoslav Army, who had been appointed minister of war in the Yugoslav government-in-exile, set up in London under the authority of King Peter. By the autumn of 1943, Allied military authorities had become convinced that much more was being done for the Allied cause by the forces organized under Marshal Tito (Josip Broz) than by those under General Mikhailovitch. Accordingly, although the Yugoslav government-in-exile continued to be recognized by the Allies, their moral and military support was being given to Marshal Tito. By the end of 1943, Tito's forces, representing all the nationalities, religious, and anti-Fascist political parties of Yugoslavia, had successfully withstood five major offensives of the Germans and their collaborators, and despite incredibly bad fighting conditions and severe losses, had become a force of over 250,000 men and women, and had liberated about a third of Yugoslavia. The forces of General Mikhailovitch were estimated at not more than 15,000, which the Allied authorities now believed had long remained inactive against the Germans, and certain of their leaders had been sharply assailed by Sir Henry Maitland Wilson, Allied commander in chief in the Middle East, for collaborating with the Axis.

Important developments were to take place during 1944 and 1945 in the military campaign of the National Liberation movement, and further light was to be thrown upon the political program which, as it now appeared, formed its basis.

On March 20, 1944 in London, King Peter was married to Princess Alexandra of Greece. In July the headquarters of his government-in-exile, which in November 1943 had been transferred to Cairo, was moved back to London.

Military and Political Developments in 1945.—At the beginning of 1944 heavily reinforced German armies engaged in a new effort to reoccupy the liberated parts of Yugoslavia and to destroy the forces defending it. By the close of the year some 70 per cent of the Yugoslav territory, including Belgrade, the capital, and all the south and eastern portions had been freed from the German occupation by Soviet and Yugoslav liberation forces.

On March 1, 1945, some five months after the liberation of Belgrade, an official decree changed the name of the National Liberation Army of Yugoslavia to *Jugoslavenska Armija* (The Yugoslav Army). The Army of National Liberation had been organized on a very primitive basis and was officered by men who in most cases had previously had little or no military training and experience. Nevertheless, it had performed deeds of great bravery and had liberated most of the country with hardly any help from the outside. In the new situation it was confronted with the problem of reorganization and development along the lines of a modern standing army.

While the military campaign proceeded, freeing further large sections of the country, plans for setting up the regency were agreed upon by the Subasitch cabinet in London. When in the opening weeks of 1945 King Peter claimed the right to name the regents, it became evident that the Subasitch government, with at least the tacit approval of the Allies, was prepared to proceed to Belgrade, regardless of the king's opposition, to merge his government with Marshal Tito's executive committee.

In the meantime, a significant issue had arisen in regard to the planning of Allied relief measures in Yugoslavia. The UNRRA, acting originally on the assumption that no government organization existed in Yugoslavia, had offered to extend relief there through its own organization, as in Italy, but on Oct. 2, 1944, the plan was rejected by the Yugoslavs. On Jan. 22, 1945, however, an agreement was announced under which relief was to be distributed by the Yugoslav Liberation authorities subject to general supervision by Allied observers.

One of the most important developments after the liberation of Yugoslavia was the organization of the federal government. Dr. Stojan Gavrilovitch, assistant secretary of foreign affairs, writing in *Free World* (June 1945), says: "The birth of this government and administration took place at a moment when the country was invaded and when the entire nation was engaged in a life-and-death battle for freedom." The government and its administration has central and local state organs, the central referred to as "federal," the local as "federative." Yugoslavia as organized in 1945 has six federative or state units: Serbia, Croatia, Slovenia, Montenegro, Bosnia-Herzegovina, and Macedonia. Each state unit has its own chief city where the federative authorities are centered. For the time being the powers of the king were vested in a council of regency. The transfer of royal authority was effected by means of a royal decree under King Peter's signature. The central and local parliaments, as well as the central and local governments, are formed on the representative basis. Their members come from the ranks of prewar political parties which were incorporated into the framework of what is known as the National Liberation Front. The incorporation implies their *a priori* recognition of three basic political principles, acceptance of which is required for participation in the government and administration of the country, namely: *national unity, the federal form of government,* and *democratic rule.*

Problems of Economic and Political Reconstruction.—In 1944 provision was made for the immediate needs of considerable numbers of Yugoslav wounded, homeless, or lacking in the means of life because of the war. In addition to the children cared for during three-month rehabilitation periods in Switzerland by the Swiss and International Red Cross, there were by the end of the year about 100,000 Yugoslavs in refugee camps in Egypt, about 30,000 sick or wounded members of the Yugoslav Liberation forces in hospitals or convalescent establishments in Italy, and some hundreds of Yugoslav civilians in the emergency refugee shelter at Fort Ontario, Oswego, New York, set up by the United States government. A number of these refugees returned to Yugoslavia during 1945.

The most important economic step taken within Yugoslavia itself in 1944 and 1945 was

the breaking up of the large estates in the liberated areas, and the taking over by the Liberation authorities of the industrial plants which had been serving the purposes of the Germans. Throughout the areas liberated, especially in 1944, large estates were either broken up and given to peasants or made into co-operative holdings. Among the areas affected by these measures was Bačka and Banat, one of the greatest wheat-growing provinces in Europe, situated on the border of Hungary, in the Danube valley. Over 1,300 industries were also taken over by the National Council from the Germans and their quislings, the purpose being to defeat a characteristic strategy of the Nazis, who are said to have been interested not so much in acquiring property as in placing—and keeping—key men in key positions, the better to achieve their ends.

Such measures are best understood in the light of Yugoslavia's history and the state of its economy subsequent to the German occupation. A study by Frano Petrinović, a prominent Yugoslav industrialist (*Bulletin of the United Committee of South Slav Americans,* May 10, June 20, Aug. 22, and Nov. 1944) indicates some of the most pressing problems of Yugoslavia's agriculture, mining, and manufacturing industries, transportation, finance, and public services. The National Council of Liberation, while much concerned with these problems and with plans for their solution, had announced in February 1943 that it would introduce no radical changes in social life and activities, apart from "replacing the reactionary district administrations and gendarmes by elected people's institutions of a truly democratic character." "All important measures" bearing on social life and state organization were "to be decided after the war by representatives truly and freely elected by the people." (*The Re-Creation of Yugoslavia,* back cover.)

The steps taken in 1944 with regard to the large estates and industrial plants are held to have been measures of immediate necessity in the struggle of the Yugoslavs against fascism and its most deadly collaborator—famine—a contention apparently substantiated in the picture of Yugoslav agriculture—the country's leading industry—presented by Petrinović.

The economic situation in Yugoslavia following the liberation raised a series of new administrative problems. Full respect for private property and individual initiative in economic affairs is one of the guiding principles in the Federative Yugoslavia, as it was formally proclaimed at the historic meeting of the central parliament at Jajce, Bosnia, in November 1943. But in the application of this principle two vital considerations are being kept in mind. The first of these is the general trend of economic reorganization in the country favoring the system of co-operatives.

Before the Second World War the co-operatives, covering many fields of activity, had become an important economic factor in the life of the peasant masses, which included over 80 per cent of the entire population. The tendency since the liberation has been to expand this system wherever it may be needed.

The second point is that as the liberation progressed, a vast amount of private enemy property in Yugoslavia fell into possession of the government. During the years of Fascist ascendancy Germany, Italy, and other enemy countries had acquired large properties and interests in Yugoslavia. The German minority in Yugoslavia also owned large estates of rich, arable land in the northern parts of the country. Most of these Germans fled with the German Army as it was forced out of Yugoslavia. It was expected that these estates would be subdivided and given to the landless veterans of Tito's Liberation Army. The industrial, mining, banking, insurance and other enemy property was taken over by the government in 1945, and in most cases was being nationalized. The Yugoslavs, despite their severe economic circumstances due to the destruction caused by the war had by the fall of 1945 already put forth great efforts toward the rehabilitation of their country. Many bridges and more than half the railroad mileage had been restored. The farms and mines were in operation, and many homes rebuilt.

Agriculture.—Yugoslavia is pre-eminently an agricultural country. Over 80 per cent of its population are engaged in agriculture, and only about 19 per cent have other trades. About 14,269,829 acres (some 50 per cent of the country's total area) are suitable for cultivation, the remainder being mainly forest. The land under cultivation falls in the following categories: arable land, 7,391,755 acres (51.80 per cent); pasturage, 4,310,357 acres (32.30 per cent); meadows, 1,825,201 acres (12.80 per cent); orchards, 260,346 acres (1.80 per cent); vineyards, 198,922 acres (1.40 per cent); gardens, 143,820 acres (1 per cent); and market gardens, 139,423 acres (1 per cent). Almost a third of the country (30.5 per cent) is in forests, giving Yugoslavia fifth place among the lumber-producing countries of Europe.

Even before the war, states Frano Petrinović, Yugoslavia, although one of the world's most fertile regions, suffered in some sections from a shortage of bread. He attributed this to medieval methods of tillage and harvesting, to exorbitant costs of farm machinery, and especially to the fact that 5,500,000 peasants—over a third of the total population of the country—lived on holdings of 11 acres or less. In 1938 the income of all the peasants—more than 10,000,000 people, comprising 77 per cent of the total population—was only 47 per cent of the national income, and their average annual cash income was only $20 per capita, with great numbers of the farmers receiving less than this. The farmers, while receiving so little for their produce, had to pay disproportionally high prices for machinery and other manufactured goods. The state, on its part, assigned less than one per cent of its budget to agriculture, while 50 per cent was spent for the army and reportedly excessive police services. The Second World War added to these disabilities a manpower shortage due to the death or incapacitation of hundreds of thousands of peasants, and ruinous losses of draft animals and other livestock, through forced sales, or outright plunder, by the Germans. The situation as Petrinović found it had made inevitable the mechanization and modernization of agriculture, requiring its complete reorganization on a co-operative basis, the lowering of tariffs on machinery and other manufactures required by the farmers, and much larger provision for agriculture in the national budget.

That the new Yugoslavia was already making progress is evident from the tobacco production of 1945. Tobacco had been of very great importance in the economic life of Yugoslavia. It was one of the state's principal sources of revenue. Yet because the peasants received very little in return for their strenuous work in raising the crop, tobacco production declined. The

21,000 acres planted to tobacco in 1932 had fallen in 1934 to 7,154 acres. Prices obtained by the grower depended upon favorable classification of the product, and this frequently depended upon graft or influence. In 1945 tobacco production was revived, and under a system of supervision instituted by the people's representatives, the peasants received fairer prices for their crops.

State Finance and Currency.—Part of the difficulty of the farmers, according to Petrinović, had been due to the heavy debts they had incurred because of the depressed condition of agriculture, and to the character of the credit system. Private creditors and the banks (almost entirely controlled by foreign interests) together held 77 per cent of the peasants' notes, and private charges were extremely high. Before the Second World War only three or four of the twenty larger financial institutions were based entirely on Yugoslav capital, foreign capital playing a larger or smaller part in all the remainder. Foreign investments in Yugoslav financial enterprises amounted to the following sums: French, 800,000,000 dinars; English, 700,000,000; Austrian, 500,000,000; Swiss, 350,000,000; Czechoslovak, 300,000,000; American, 300,000,000; Belgian, 250,000,000; Hungarian, 200,000,000; German, 180,000,000; Italian, 100,000,000; Swedish and Polish to lesser sums.

The war had brought a multiplicity and confusion of currencies, eight different currencies being in circulation in the fall of 1944, including Yugoslav dinars, Serbian dinars, Croatian kunas, Italian lire, German marks, Magyar pengõs, Bulgarian levas, and Albanian francs—some paper issues appearing in enormous quantities through manipulations by the Nazis and their quislings. Currency stabilization had become one of the most pressing problems, if only in view of the need for restoring the confidence of the food producers in their market.

Minerals and Manufactures.—Mining is the most important item in the economic life of Yugoslavia. Few countries have a greater variety of mineral wealth, from the precious metals down to lignite. Prior to the Second World War there were 122 mining enterprises and 11 smelting companies in Yugoslavia. However, by the authority vested in the government, foreign capital played the predominant part in most of these enterprises. Instances in point were the Trepča and Bor mines, owned partly by British and French interests, and partly by the king of Yugoslavia and certain of his ministers. Following liberation the ownership of these mines became a subject of controversy between the British and French and Marshal Tito. Tito contended that they were the property of the people and of the state of Yugoslavia. Forests, covering nearly a third of the country, also constitute an important industrial resource.

After the First World War the Yugoslavs, while they had won political freedom in a formal sense, are held to have fallen into economic bondage to various international cartels, to their own manufacturing interests, and to their state monopolies (salt, tobacco, matches, cigarette paper, petroleum, alcohol, gunpowder, saccharine, dynamite, and others). Hence the necessity, as Petrinović sees it, for comprehensive and long-range planning to make the country economically independent, for international credits under which Yugoslavia will be permitted to repay her loans in exportable goods and services, and particularly for importing machinery and transportation facilities, as basic requirements for the restoration of her shattered economy.

Yugoslav authorities state that various products such as sardines, marasca cherries, olive oil, camomile tea, and wine, which had been marketed in the United States as products of Italy, were actually produced in Yugoslavia. This practice, according to Marshal Tito, will no longer be permitted.

Transportation.—Yugoslavia's transportation facilities, never adequate, are reported to have been reduced to a "deplorable state" as a result of the war. Not only were the railways—with the exception of a few strategic lines—neglected by the Germans, but even the few received only temporary repairs following much destruction of tracks, bridges, tunnels, and rolling stock by the partisan armies, and of important stations and repair shops by Allied bombers. Yugoslavia was also under the necessity of building or buying an entirely new merchant fleet, which is to be entirely state owned.

Observers of the progress made in construction and road building during 1945 under the direction of Yugoslavia's postwar government emphasize the point that the prewar regime had neglected road building, and had misappropriated a fund of over 500,000,000 dinars, which had been set aside in 1935 for the building of 21 vital roads.

The Yugoslav Economy and the War.—In addition to the monopolies exercised by the state over the sale of tobacco, salt, and other important commodities mentioned in a preceding paragraph, the state owned the railways, the telephone and telegraph systems, most of the forests and some of the mines. This feature of the government organization was expected to continue, and even to be somewhat increased on account of the safety measures considered necessary to prevent continued Fascist influence in the industries, and the pressing need for aiding the peasants to grow sufficient food, for providing housing, medical facilities and schools in wide areas which had been completely devastated, and in making Yugoslavia economically independent.

The government to be voted in, following the complete freeing of the country, was expected to develop trends already established, with the people in general participating in, and benefiting from the rebuilding of the national economy to a greater extent than formerly, in line with their heavy sacrifices and common efforts in the war. Contrary to fears voiced in the United States and elsewhere that the national antagonisms of the Balkans, including Yugoslavia, might prove insoluble, proponents of the Liberation movement continued during 1945 to assert their belief that in achieving fighting unity against the Germans and their quislings the peoples of Yugoslavia had created the basis for a solidly democratic Yugoslav federation, and possibly for a still broader federation of similarly minded Balkan peoples, within the framework of the United Nations. See also WORLD POLITICS.

Political Developments.—Dr. Ivan Subasitch, Yugoslav foreign minister, and Dr. Juraj Sutej, minister without portfolio, resigned as of Oct. 8, 1945, and Marshal Tito announced that he would act as foreign minister until after the national elections for a Constituent Assembly. These elections, held November 11, and the first since 1938, were the first held by secret

ballot and the first in which women were allowed to vote. Opposition parties withdrew their candidates, and the general vote for the National Liberation Front was estimated at about 90 per cent of the votes cast. In one Belgrade district an American observer reported that about 83 per cent of the electorate had voted, the vote in this case being about 75 per cent for the Liberation Front. On November 29 the Constituent Assembly (Skupshtina), meeting at Belgrade, proclaimed the country a republic, renaming it the Federal Peoples Republic of Yugoslavia, and declared the monarchy abolished, and King Peter II, "Peter Karageorgevitch . . . deprived of all rights previously vested in him and in his dynasty." (New York *Times*, Nov. 30, 1945.) On the same day King Peter issued a statement signifying his refusal to accept this decision.

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HOWARD D. LANGFORD,
Revised by Vlaho S. Vlahović, Author, Two Hundred 50 Million and One Slavs.

YUKON TERRITORY. Constituted a territory in 1898 with an area of 207,076 square miles, the Yukon Territory lies between Alaska and the Northwest Territories of Canada. The climate is subject to extremes in temperature, and very moderate precipitation. The maximum temperature recorded at the Dawson Meteorological Station in 92° above, and the minimum 68° below zero. The average precipitation is 12.8 inches per year.

The chief executive of the territory is called the controller, and is appointed by the governor in council. He administers the territory under instructions from the governor general in council, or the minister of the Department of Mines and Resources. There is an elective legislative council of three members. The controller in council has power to make ordinances dealing with the imposition of local taxes, sale of liquor, preservation of game, establishment of territorial offices, maintenance of prisons and municipal institutions, issue of licenses, incorporation of companies, administration of justice, and generally all matters of a local and private nature in the territory. The Yukon has one representative in the Dominion Parliament elected at the same time as the General Dominion election. Schools in the territory are maintained wholly by the territorial government, there being no school districts or assessments for school purposes.

Placer gold mining is the chief industry in the territory at present, and it has been greatly curtailed due to conditions resulting from the war. Lode mining was closed down at the beginning of the war. Prospecting for minerals was very active in 1945.

Revenue collected by the territorial government for the fiscal year ended March 31, 1945, amounted to $299,015.82, and expenditures were $296,682.04.

The population of the territory has decreased considerably since the year 1944, due to the closing down of the Canol pipeline from Normal Wells and the oil refinery at White Horse; also to the completion of the airfields on the North West Staging Route, and the completion of the Alaska Highway. Dawson is the capital. White Horse, Carcross, and Mayo are other centers of population.

G. A. JECKELL,
Controller, Yukon Territory.

Z

ZANZIBAR PROTECTORATE. See BRITISH EAST AFRICA.

ZHUKOV, Georgi Konstantinovich, Soviet Army officer: b. 1895. Marshal Zhukov commanded the First White Russian Army for the Soviet offensive launched against Germany in mid-January 1945. One of the great Russian armies driving along an 800-mile front from East Prussia to the Carpathians, his armored divisions were by April 17 poised before Berlin for "the last, long heave." Premier Joseph Stalin's deputy commander in chief and political confidant, Zhukov is one of the ablest Soviet commanders to emerge from the Second World War. He was chief of staff for the defense of Moscow in the first bitter months of the Nazi invasion, and in late 1942, with Marshal Vasilevsky, directed the Soviet counter-offensive at Stalingrad. He was ordered to Moscow in the first days of January 1943 to organize Red Army forces for the lifting of the 17-month siege of Leningrad. On January 29, he was awarded the Order of Suvorov, first degree, for his part in the campaign, concluded January 18. In March 1944, he directed the Soviet drive across the Southwestern Ukraine, replacing the late Gen. Nikolai F. Vatutin as chief of the First Ukrainian Army. Marshal Zhukov entered army service in 1915; fought with Bolshevik forces in 1917–18; and in 1938–39, commanded Red Army tank detachments opposing the Japanese. He is a product of the famed Frunze Military Academy, where he specialized in armored warfare, studying under the late Marshal Boris Shaposhnikov. In 1941, he became vice commissar of defense, an alternate member of the Political Bureau of the Communist Party, and Red Army chief of staff, later to be replaced by Shaposhnikov. During the Spanish Civil War, he was tank expert for the Loyalists. Before the Nazi invasion of the Soviet Union, he co-operated with Marshal Timoshenko in the reorganization and training of the Red Army. He holds the Red Army's highest award, the Order of Victory. He was one of the Allied signatories to the Berlin surrender of the Germans on May 8, 1945.

ZINC. Mine production of recoverable zinc (including that made into zinc pigments) in the United States decreased 3 per cent from 744,196 short tons in 1943 to 718,642 tons in 1944. The total value of the 1944 output was $157,954,000, compared with $170,370,000 in 1943. Zinc for French process oxide rose sharply to 76 per cent

above the 1943 total, owing to the need for increased quantities of oxide for military uses.

The "Tri-state" or Joplin region of Oklahoma, Kansas, and Missouri maintained its position as the principal zinc-producing district with 26 per cent of the United States output, even though production declined 5 per cent in 1944. The Western states supplied 46 per cent of the domestic total output, Idaho being the largest producer of the group. Imports of zinc continued at a high rate during 1944, but the total in ore and as slab zinc was 18 per cent below the record established in 1943. Of the 422,700 tons of zinc imported in ore, 42 per cent came from Mexico, 27 per cent from Canada, and 10 per cent each from Peru and Australia.

ZONTA INTERNATIONAL. An organization of classified service clubs of executive business and professional women, membership being by invitation and determined by the type of business in which the firm is engaged, as well as by the position held in the firm. There are 155 clubs in Canada, Denmark, Hawaii, Iceland, Sweden, and the United States with approximately 5,200 members.

Main objectives are community service; encouragement of high ethical standards in business and the professions; improvement of the legal, political, economic, and professional status of women; and the advancement of international understanding, goodwill, and peace through a world fellowship of executive women.

Zonta's chief service is work with women and girls. Included in club activities are the establishment of youth centers; co-operation with juvenile court authorities; establishment of nursery schools for working mothers; health and social welfare programs; improved facilities and conditions for women and girls; encouragement to older business women; work with the blind; and scholarships and loan funds for students. Zonta clubs co-operated fully with their governments in war activities and are continuing in the rehabilitation of war veterans and in relief to war victims. The Amelia Earhart Scholarship, in honor of the noted United States aviatrix and Zontian, is awarded annually to a qualified young woman for graduate study in the field of aeronautics.

Zonta was one of the sponsoring organizations of the United Women's Conference at San Francisco in May 1945. A valuable contribution to world peace made by Zonta in 1945 was the international radio program entitled *Women United for Peace,* which brought on the air outstanding women of four countries: Kerstin Hesselgren, first woman member of Sweden's Riksdag; Senator Thelma Moore Akana, of Hawaii; Zonta's president, Jessie Ekins, of Canada; and Zonta's executive secretary, Harriet Richards, of the United States.

International headquarters are located at 59 East Van Buren St., Chicago 5, Ill. Miss Jessie Ekins, St. Catharines, Ontario, was international president in 1945; Miss Harriet C. Richards, executive secretary; and Mrs. Lucile D. Edgar, editor of *The Zontian,* official publication of Zonta International. LUCILE D. EDGAR,
Director of Public Relations, Zonta International.

ZOOLOGY. Taxonomy and Evolution.—In *Tempo and Mode in Evolution,* G. G. Simpson has examined the fossil record in the light of recent developments, especially those of population-genetics. Among his more important results is the conclusion that processes of an unknown nature, such as would be required in orthogenesis or in Goldschmidt's stepwise evolution by systemic mutations, are not required to explain the paleontological data. For example, origin of the different mammalian lines might be expected to take place in small populations and at a very rapid rate, so that traces of the intermediate stages would have relatively poor chances of preservation, and discontinuities in the fossil record would result.

A second impressive contribution by Simpson, *Principles of Classification,* contains an introductory section outlining the methods of taxonomy. Although systematic zoology has recently become revitalized, facilities for training students in the basic techniques of taxonomy have not kept pace. Simpson's text is designed to help in the correction of this situation. The second part of the study deals with the classification of Mammalia. A table giving the systematic position of all known genera, both recent and fossil, is followed by a discussion of the basis for choice between the various proposed alternatives for each grouping. Explicit comments on "vertical" and "horizontal" notation of phylogenetic relationships, and on "splitting" versus "lumping," provide practical illustrations of principles discussed in the introductory general section.

Among studies on the mechanism of species formation is an interesting series of experiments to determine the degree of sexual isolation between different geographical strains of various species of *Drosophila,* by Th. Dobzhansky together with E. Mayr. Dobzhansky points out that mating preferences tending to reduce gene-exchange between different groups would reduce wastage in the form of ill-balanced hybrids. Differences serving as recognition-marks for sexual aversion would thus be favored by natural selection. The evolution of complex differences between species in structures and habits connected with courtship and mating would thereby be explained without recourse to special theories such as Darwin's sexual selection.

Genetics.—In a symposium on *Genes as Physiological Agents,* S. Wright has clarified the theory of the relationship between genes and the organisms of which they are a controlling part.

T. M. Sonneborn, in the same symposium, brings forward new evidence concerning the cytoplasmic inheritance of "killer" properties found in one race of *Paramecium aurelia.* "Killer" strains of the protozoan give off into the culture-medium a substance poisonous to "sensitive" strains. This "killer" property results from the presence in the cytoplasm of a substance which is produced only in cells containing a certain gene (K). However, cells of the killer genetic constitution do not manufacture the cytoplasmic substance unless this killer substance is already present, somewhat as if a pump had to be primed. Sonneborn now finds reason to believe that the killer substance may be entirely removed from the cytoplasm of the cell by combination with the macronuclei. A strain of *Paramecium* of this sort does not exhibit the killer property as long as it reproduces only by asexual means, but may become killer again after sexual reproduction, when the old macronuclei break down and release killer substance into the cytoplasm.

Wright points out that Sonneborn's results may offer a clue to one of the most mysterious of biological processes, *differentiation,* by which the

original single egg cell gives rise in the course of development to daughter cells which are presumably of identical genetic composition but are of different self-reproducing kinds. As a still more startling possibility, the supposed behavior of the killer-substance would be in accord with recent evidence that mutations can be induced by antibodies.

Experimental Embryology.—J. Holtfreter's studies of the role of the surface coating or syncitial membrane of embryonic amphibian cell-aggregates have now enabled him to clarify further the confused data concerning organizer-action. He finds that differentiation of nerve structures in fragments of presumptive epidermis kept isolated in standard culture solution, results from stimuli released by cells expelled from the exposed uncoated surfaces of the explanted fragments. He concludes that in most if not all cases in which chemical substances or dead or foreign tissues have been thought to have acted as "inductors," the effect was actually an indirect one, mediated by cytolysed cells of the host.

Behavior.—W. C. Allee, in an essay on the biological background of human conflict and cooperation, has brought together and related the wealth of recent experimental data on mechanisms governing the relationships between individuals of animal communities.

Physiology.—D. Nachmansohn has added new evidence for his view that it is the release and removal of acetylcholine which produces alterations in the nerve cell-membrane and so controls and generates the flow of electric current in the transmission of nerve impulses. Choline esterase, the specific enzyme which destroys acetylcholine, is known to be found in all nerve tissues, whether from vertebrates or invertebrates, mammalian brain or electric organ of fishes, synapse and cell-containing grey matter or axon only. Acetylcholine itself is now found to be formed in axons at a rate not lower than one half to one third of that in grey matter.

Protozoa.—Jennings, summarizing his studies of age and death in *Paramecium*, has concluded that these processes are not limited to multicellular animals but occur on a vast scale in protozoa. Most if not all asexually produced lines of protozoa ultimately decline and die if they are not rejuvenated by sexual reproduction. The rejuvenating function of conjugation, as distinct from its function as a producer of genetic variation, is not understood but must be accepted as a fact.

Insects.—V. B. Wigglesworth has demonstrated that the restriction of water-loss through the skin of insects is due to a thin layer of wax or grease on the outer surface. Disorientation of the molecules of the wax layer occurs at critical temperatures, which are highest in those insects or stages which are most resistant to dessication. This results in an abrupt increase in permeability. High evaporation rates can also be produced by scratching the wax layer, which accounts for the high moisture-needs found in insect larvae from the soil. Abrasion of the wax by inert dusts results in higher permeability of insects to water and to insecticides.

Birds.—The means by which birds are able to find their way from remote points to their nests or seasonal habitats remains a subject of controversy. William Rowan has brought forward new evidence that migratory orientation is not accomplished simply by the recognition of geographical and meteorological patterns and familiar landmarks. Juvenile crows were kept caged in Canada, for a month after the last adults had flown south. They were released when the ground was blanketed with snow. Over 50 per cent were recaptured during the next ten days, up to 250 miles away, all of them on the direct line to their wintering ground in Oklahoma.

MARTIN D. BURKENROAD,
Peabody Museum, Yale University.

ZULOAGA, Ignacio, Spanish painter: b. Éibar, Guipúzcoa, Spain, July 26, 1870; d. Madrid, Oct. 31, 1945. Zuloaga was internationally known for his paintings of popular Spanish types, bullfighters, and gypsies; his portraits of women; and his landscapes. Zuloaga started out to be a mining engineer, but after a visit to the Prado he decided to study art and was sent to Rome. He stayed there only a few months and then traveled throughout Italy, France, and England. After six months' work he finished his first painting, which was exhibited in the Paris Salon of 1890. He continued his studies in Paris, being strongly influenced by Gauguin and Toulouse-Lautrec, but it was not until his return to Spain that his mature style developed under the influence of such Spanish masters as Velasquez, Zurbarán, El Greco, and Goya. However, it was in Paris rather than in his native country that Zuloaga was first acclaimed as the reformer of Spanish national art. He was noted for his collection of paintings by El Greco, a number of which he discovered stored away in a monastery and bought for five donkey-loads of provisions. Zuloaga became an American favorite in 1909, when an exhibition of 38 of his works was held in the museum of the Hispanic Society in New York. At the time of his visit to the United States in 1924, he was estimated to have completed more than 500 paintings, some of which brought as much as $25,000.

ZULULAND. See SOUTH AFRICA, UNION OF.

Cumulative Index to Americana Annuals
1942, 1943, 1944, and 1945

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